

**PROCEEDINGS AND RESEARCH SYMPOSIUM
ABSTRACTS OF THE 32nd
ASSOCIATION OF OUTDOOR RECREATION AND
EDUCATION CONFERENCE**



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General Information about AORE

The Association of Outdoor Recreation and Education (AORE) is an organization developed by and for outdoor recreation and education professionals and students. Founded at the International Conference on Outdoor Recreation in 1993, AORE is a grass roots organization dedicated to advancing the field of outdoor recreation and education.

AORE is the only organization dedicated to serving the needs of recreation and education professionals in non-profit settings. Through AORE, members have a mechanism to interact with and affect decisions made by public land managers and the human powered outdoor recreation industry.

AORE is committed to promoting ecologically sound stewardship of the natural environment and serves as a collective voice for its members regarding topics of regional and national concern.

Mission Statement

The mission of the Association is to provide opportunities for professionals and students in the field of outdoor recreation and education to exchange information, promote the preservation and conservation of the natural environment, and address issues common to college, university, community, military, and other not-for-profit outdoor recreation and education programs.



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*The definitive resource for the not-for-profit
outdoor recreation and education profession.*

INTRODUCTION

This collection of papers on presentations and research serves as a written record of the 2018 Association of Outdoor Recreation and Education conference. This year represents a unique collaboration with the Wilderness Education Association and this work represents the joint body of work between the two organizations. Since its inception in 1984, the AORE has been and continues to be the only national and international conference devoted solely to schools and organizations involved in non-profit outdoor recreation. Represented at the conference this year are college and university outdoor programs, academic departments, parks and recreation programs, and military programs.

Table of Contents

AORE WEA Conference Research Symposium Abstracts

The Impact of Natural Landscapes on Inspiration: A Topophilic Study.

Brad Daniel, Ph.D. 2nd Nature TREC, Jim Shores, Ph.D., Asbury University, and Brad Faircloth, Ph.D., Montreat College.....6

Nature Versus Non-Nature-based Adventure Activities on Military Stress, Cohesion, and Communication

B. Derrick Taff, PhD, Penn State University, John O’Sullivan, US Army Outdoor Recreation and Warrior Adventure Quest program, and Camilla Hodge, PhD University of Utah.....9

Participation in the Outdoor Nation Campus Challenge, Place Attachment and Well-Being

Dr. Geneviève Marchand and Dr. Nate Millard.....12

Mechanisms in Outdoor Adventure Education that Facilitate Transformational Learning

Lisa Meerts-Brandsma,, Jim Sibthorp University of Utah, Shannon Rochelle NOLS..... 15

Success and Failure as Pedagogical Tools in Outdoor Education

Michael Riley, MA University of Utah.....18

Critical and Transferable Impacts of Camp Participation: Implications for Experiential Educators

Dan Richmond, Ph.D., Cait Wilson, Ph.D., and Jim Sibthorp, Ph.D. University of Utah.....21

Situating Quagmire: Simulation-Based Gaming as Preparation for Field-Based Study

Mike Riley, University of Utah.....26

“To Use or Not to Use”: Understanding Smartphone Use in High-Alpine Environments

Robert Warner, M.S., University of Utah.....29

San Francisco Youth Outdoor Recreation Intentions through Themed Messages

Marni Goldenberg Professor Ph.D., and Keri Schwab Ph.D., California Polytechnic State University...32

Medical Specialty Camps: Campers/Staff Perceptions using the ACA Youth Outcomes Battery

Eddie Hill, Ph.D., CPRP, Old Dominion University, Takeyra Collins, MS, CTRS Virginia Wesleyan University, et al.35

Working behind the wall: Health related concerns of Route setters

Erik Rabinowitz, Ph.D., Appalachian State University.....39

Social Norms for Mountain Bikes and Mountain Dogs in the Wildland-Urban Interface

Chris Zajchowski Ph.D. Assistant Professor, Old Dominion University, Jeff Rose Assistant Professor Ph.D., University of Utah and Kensey Baker Graduate Teaching Assistant, University of Utah...42

AORE WEA Conference Abstracts

Trail Work for Training: A Case Study of Participatory Experience Tourism amongst 100-mile Runners

Clark T.W. Zealand, Ph.D., Liberty University.....48

Mountain Bikes perceptions of Electric Mountain Bikes

Kristian Jackson Senior Lecturer, Erik Rabinowitz, Ph.D., Appalachian State University.....55

Gender specific programs: Better understanding the female mountain biking experience

Patrick Lewis, Ph. D. and Maggie Wise, B.S., Ithaca College.....57

Examining Perceived Confidence and Proficiency of College Students Participating in an Outdoor Leadership Development Course: An Exploratory Study

Eric Frauman Ph.D, Professor and Cody Anderson Program Assistant, Appalachian State University.....60

College students' definition of adventure: Three years of student generated videos

Jackson Wilson, Ph.D., Benjamin Kumli, M.S. San Francisco State University.....62

Hosting Triathlons on a College Campus: Perceived Health Outcomes, Values, and Satisfaction

Eddie Hill, Ph.D. Associate Professor, et al. Old Dominion University.....66

Evaluation of food intake during outdoor education programs and its relationships with energy expenditure and conditions of participants

Aya Hayashi, Satoko Takeda, Mai Suizu Biwako Seikei Sport College, Japan.....69

Entry-Level Competencies for Natural Resource Based Outdoor Recreation Management Professionals

Robyn L. Ceurvorst, Ph.D., and Rachelle Fuller, Ph.D., University of Minnesota, Mankato..70

Instructor Perceptions of Smartphone use in Outdoor Education Programs

Dan McCoy, M.A., Craig E. Shepherd, Ph.D., et al. University of Wyoming.....72

The Perceived Health Outcomes and Value of College Climbers: Exploring Why They Climb

Eddie Hill, Ph.D. Associate Professor, et al. Old Dominion University.....75

The Impact of Natural Landscapes on Inspiration: A Topophilic Study.

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Summary

This presentation will share findings from an exploratory, qualitative study on the impact of various natural landscapes on inspiration. The theoretical framework of topophilia - the affinity people have for certain places or landscape features (Tuan, 1974) – informed the study design. The study was conducted in the summers of 2015 and 2017. Participants were students on an extended field course that studied ecosystems in many western national parks and monuments.

The Impact of Natural Landscapes on Inspiration: A Topophilic Study

Background

Are some landscapes or landscape characteristics more inspirational than others? This paper will present findings from an exploratory, qualitative study on the impact of various natural landscapes on inspiration. The study was conducted in the summers of 2015 and 2017 to explore the relationship between landscape and inspiration through the theoretical framework of topophilia - the affinity people have for certain places or landscape features (Tuan, 1974). All participants were students on an extended traveling college field course called American Ecosystems (AE). Students studied the flora, fauna, ecology, weather, climate, geology, landforms, and environmental issues associated with each place. Locations included many western national parks and monuments. Each student taught about one place.

Topophilia is the affective or emotional bond between people and place or setting. It involves an affinity for locations and landscapes (Tuan, 1974). Previous studies have identified many factors that influence perception of landscape including culture/cultural history, age, gender, background, and familiarity (native or visitor) (Gibson, 2009; Tuan, 1974). The impact of landscapes on people has been studied in various contexts including wilderness experiences (Fredrickson & Anderson, 1999; Kaplan & Kaplan, 1995) and field courses (Boyle et. al., 2007; Elkins & Elkins, 2007; Hope, 2009). Topophilia-related research has looked at landscape's influence on environmental perception, attitudes and values (Tuan, 1974), environmental sensitivity (Metzger & McEwen, 1999), quality of life (Ogunseitan, 2005), connectedness to nature (Mayer & Frantz, 2004), environmentally responsible behavior (Vaske & Kobrin, 2001), and sustainability (Beery, Ingemar Jonsson, & Elmberg, 2015).

Previous research on human-nature attachment has often focused more on individual to place than place to individual or “the affective appeal that place impresses upon the individual” (Frederickson & Anderson, 1999, p. 22). Despite anecdotal evidence, to date, little research has looked at the ability of landscapes to inspire. Thus, more research is needed on the impact of the setting or place on the human experience. A topophilic connection can be intellectual, spiritual, or emotional, and the connection is often related to characteristics of the place (Tuan, 1974). The purpose of this study was to explore the attraction between participants and places/landscape features, as well as if and how that affinity created a sense of inspiration, defined as “the process of being mentally stimulated to do or feel something” (OED, 2017). Previously, we reported on emergent themes from both trips. The results presented in this paper represent an analysis of the end-of-course responses in terms of demographics: gender, academic majors, previous

visitation, and the amount of time on the course spent at each place. Data analysis is ongoing.

Methods

Participants were chosen based on criterion sampling (Creswell, 2014). All participants were students on either the 2015 (n=15) or 2017 (n=15) AE traveling field course offered by Montreat College. The 2015 course studied the ecosystems of 19 U.S. National Parks, Monuments, and natural areas over 26 days. The 2017 course did the same at 14 similar locations over 18 days. Students traveled on a sleeper bus, which allowed the group to visit many parks in the American West in a relatively short amount of time. Participation in the study was completely voluntary and not connected to student grades. Participants majored in environmental studies, biology, outdoor education, English/creative writing, communication, and psychology.

The Montreat College Institutional Review Board approved the study in May 2015. All AE students received a description of the study and were invited to participate. Students wishing to participate in the study signed an informed consent form prior to the trip. All participant surveys were confidential and anonymous.

On the trips, data collection took place in two phases. First, a short survey consisting of open-ended questions was administered immediately after visiting each park to determine if students were inspired by the place and, if so, to determine what features or qualities inspired them. Based on their responses, they were asked why they thought each place was/was not inspirational. In addition to questions about inspiration and landscape, information was collected on the weather, their emotional state, and group dynamics on the day they visited to help determine if these factors affected the participants' experience of place. They were also asked if they had visited the park previously. Short follow-up interviews while on the course were conducted as necessary to clarify responses. All responses were self-reported.

The second phase of data collection took place at the end of the course. Participants were asked to 1) rank their top five most inspirational places (parks, monuments, natural areas) and describe why they found them to be inspirational; 2) rank order their three least inspirational places and describe why they did not find them to be inspirational; 3) describe what landscape features or characteristics most inspired them. Since many of the parks, monuments, and natural areas contained different types of landscapes, biomes, and ecosystems, participants were provided with a comprehensive list of the most prominent ones. They used this list to describe which ones they found most inspirational.

Data analysis for this qualitative study employed a grounded theory approach, whereby theory emerged from the data (Corbin & Strauss, 1990). The words and phrases in the survey responses were analyzed for content and used to construct themes. The two trip leaders/course instructors for the 2015 trip were also researchers for the study. One of the two trip leaders/course instructors for the 2017 trip was also a researcher. While this was helpful for insuring consistency in how the data was collected and interpreted, it also represented a potential source of bias. To increase trustworthiness of the findings, a third researcher not on the trip coded 20% of the data with a goal of 80% agreement or higher.

Results and Discussion

The three most inspirational parks were Zion, Grand Teton, and Badlands (2015) and Grand Teton, Yellowstone, and Yosemite (2017). Factors most often linked to inspiration included 1) vertical landscape features, 2) positive group dynamics and shared experiences, and 3) direct experience of place through various activities (e.g., hiking, horseback riding). These factors are supported by previous findings (Fredrickson & Anderson, 1999). Five of these parks also represented places where students spent more time on the trip.

Results were interpreted according to landscape features, qualities of the landscape, and reactions to the landscape. Although many individual landscape features inspired participants, the most frequently cited were vertical expanses (canyons, faulted mountains, and volcanic mountains). The most frequently cited landscape quality was "beauty", and the most frequently cited reaction was "awe" or "a sense of wonder." If inspiration is defined as "the process of being mentally stimulated to do or feel something," it

could be said students were mentally stimulated by the “beauty” of “vertical spaces” to feel “a sense of awe.” In addition, students often cited experiencing nature (hiking, tidepooling), overcoming personal challenges related to the landscapes (steep trails), and encountering wildlife as important inspiration sources. Horizontal landscape features such as open grasslands and plains received both positive (sublime) and negative (overwhelming) reactions. This study adds to the literature on how humans experience natural landscapes and how those experiences inspire them emotionally, intellectually, and spiritually.

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Nature Versus Non-Nature-based Adventure Activities on Military Stress, Cohesion, and Communication

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Presentation Summary:

The results of this study of $n=22,917$ Army Warrior Adventure Quest participants provide practitioners with a better understanding of the potential outcomes adventure-based recreation participants may receive as a result of nature-based and non-nature-based activities. Ultimately, nature-based activities led to significantly higher positive outcomes, and participants can apply this understanding to improve the activities and associated outcomes they strive for in their respective programs.

Introduction and Background

A larger number of ill or injured American military service members have returned from the recent wars in Iraq and Afghanistan than any previous war (Carlock, 2007), and efforts to provide opportunities for mental and physical recovery are imperative. Numerous adventure-based programs (e.g., Outward Bound, National Outdoor Leadership School, Higher Ground) have been established within the past two decades to aid service members in reintegrating into civilian life or preparing for additional military service, through recreational opportunities. Many of these adventure-based programs facilitate these group offerings in outdoor, often largely natural settings, and they tend to foster experiences involving real or perceived risk, uncertainty, and unique benefits that can be accrued by the participants in these settings (Andre, Williams, Schwartz, & Bullard, 2017; Bell & Marchand, 2017; Bobilya, Lindley, Faircloth, Holman, 2017; Daniel, Bobilya, Kalisch, & Lindley, 2010; Ewert & Sibthorp, 2014; Garst, Scheider, Baker, 2001; Ward, 2011). Although research is relatively scant, adventure-based programs for service members have been linked to a variety of positive outcomes (e.g., Bennett, Lundberg, Zabriskie, & Eggett, 2014; Bennett, Puymbroeck, Piatt, & Rydell, 2014; Erickson, 2011; Ewert, Frankel, Puymbroeck, & Luo, 2010; Ewert, 2014; Harper, Norris, & D'astous, 2014; Hyer, Scurfield, Boyd, Smith, & Burke, 1996; Lundberg, Bennett, & Smith, 2011; Mowatt & Bennett, 2011; Vella, Milligan, & Bennett, 2013).

Realizing the potential benefits of adventure-based recreation, the U.S. Army Family and Morale, Welfare and Recreation (MWR) Department developed Warrior Adventure Quest (WAQ) in 2007 (MWR, n.d.). The purpose of WAQ is focused on promoting Soldier resilience. Further, WAQ was specifically developed as a stress coping tool for those returning from combat deployments, and a training tool for unit cohesion and improved communication for Soldiers readying for deployment. Thus, at the conclusion of WAQ, participants are asked to evaluate the program's four major outcome goals, including: stress coping, social cohesion, communication, and leadership.

WAQ is facilitated through nature-based and non-nature-based activities such as indoor and outdoor rock climbing, mountain biking, ATV riding, laser tag, go-karting, paintball, scuba, high ropes courses, snow skiing, zip lining, canoeing, and whitewater rafting, along with leadership and resilience

training, at no cost to participants (MWR, n.d.). Participants engage in WAQ with their military units and a WAQ session generally takes a full day. As part of the larger MWR program, WAQ is provided across bases in the United States, Asia, and Europe. Since 2009, WAQ has served more than 20,000 Soldiers annually.

Despite the growing body of literature examining adventure-based programs for service members and the potential outcomes associated with these activities, research examining the influence of recreational setting is limited (Haynie, 2010; Taff, Benfield, & Newman, 2016). This study examined WAQ participant outcomes stemming from the program's goals (i.e., stress coping, social cohesion, communication, and leadership) as a result of either nature-based or non-nature-based adventure programming.

Methods

All participants in this study were active duty army service members who participated in at least one WAQ program. The study includes data from all participants from 2015, and is thusly considered a population study for WAQ during that year. In total, $n=22,917$ military personnel from 29 bases across the world completed the same survey, focused on multi-item measures of the desired outcomes including: improved stress coping, social cohesion, communication, and leadership. A total of 29 nature-based and non-nature-based WAQ adventure recreation activities were divided into respective categories.

Results and Implications

Nature-based activities led to significantly higher positive WAQ program outcomes than non-nature-based programs. Results provide understanding of the potential desired outcomes stemming from specific nature-based and non-nature-based activities, to see which activities and in which settings, can explicitly lead to improved stress coping, social cohesion, communication, and leadership. This understanding can inform programming by apply this knowledge to improve adventure-based recreation activities and desired outcomes. Results also inform strategies for improving measurement of adventure-based activity program outcomes through examples of uniformed, quantified assessment tools with significant reliability scores.

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Participation in the Outdoor Nation Campus Challenge, Place Attachment and Well-Being

Dr. Geneviève Marchand and Dr. Nate Millard

Introduction

Research shows that participation in outdoor recreation activities has physical, social and mental benefits, as well as advantages to academic performance. Several studies have looked at college students participating in outdoor recreation activities through campus organizations and programs, and the findings are promising. From increase social bonding, development of trust and increase sense of community (Breunig, O'Connell, Todd, Anderson & Young, 2010) students who participate in outdoor recreation activities reap many benefits. Most importantly, students who participate in outdoor activities with their peers and/or through various campus programs, exhibit a stronger sense of place and attachment to their campus and local communities (Austin et al., 2010; Miller, 2011). This is an important finding that can be utilized by campuses who struggle to retain students because of low attachment to their campus and surrounding community. Further, place attachment and its various dimensions have been linked to student retention and are especially strong when combined with other academic factors (Lotkowski, Robbins, & Noeth, 2004). Another important benefit of place attachment is the desire to protect and cherish their surroundings (Vaske & Kobrin, 2001). While place attachment is often thought of as an individual concept, some researchers suggest that social communities and their relationships may also play an important role in the development of place attachment (Kyle, Graefe, & Manning, 2005). This has been measured for college and university students. However, no studies have looked at the participation in outdoor recreation through a community challenge, such as the Outdoor Nation Campus Challenge (ONCC). The purpose of this study is to examine the role of participation in the ONCC in the development of place attachment. This study also measured the overall well-being of students. Through this study we attempted to answer these questions: Do students participating in the ONCC have higher place attachment than their counterpart? Do students participating in the ONCC have higher overall well-being?

Methods

In the Fall of 2017, pre and post-surveys were administered 15 weeks apart to about 1000 students from two medium sized Western states universities. About 29% of the respondents participated in ONCC. Over half of those participants were at one institution. The Mental Health Continuum-Short Form (MHC-SF) was used to measure emotional well-being (Keyes, 2009). To measure place attachment, which comprises place identity, place dependence, and social bonding, we used an adaption of Williams and Roggenbuck's (1989) measure of place attachment for recreation settings developed by Kyle, Graefe, and Manning (2005). Students were asked about their previous participation in ONCC, current major, class level, level of participation in outdoor recreation activities and other descriptive statistics. Information was analyzed using ANOVA and regression analysis. Descriptive statistics were also compiled.

Results

Place attachment slightly increased with participation in the ONCC, however, those findings were not statistically significant. A significant difference was found between place attachment scores based on class standings ($F[4, 998] = 11.189, p < 0.01$), where seniors had the highest levels of place attachment. Levels of place attachment were also significant for higher levels of self-reported interest in outdoor recreation ($F[6, 997] = 24.588, p < 0.01$), higher frequency of outdoor recreation ($F[6, 997] = 12.637, p < 0.01$), and increased in levels of outdoor recreation participation since going to college ($F[2, 1001] = 46.033, p < 0.01$). Well-being, while not statistically significant, trended downward as class standing increased. However, well-being was significant with increased interest ($F[6, 997] = 9.192, p < 0.01$) and frequency of outdoor recreation ($F[6, 987] = 6.452, p < 0.01$). Well-being in students, while not

statistically significant, lowered at the end of the semester, and was the lowest among seniors. Overall, levels of participation in outdoor recreation activities were significant between wellbeing and place attachment ($F(6, 997) = 6.452, p < .001$), where place attachment increased as well-being increased.

A majority of students (76%) reported that following their participation in the 2017 Outdoor Nation Campus Challenge, they would be participating in more local outdoor recreation activities. Participants were full-time students (98.4%), with a majority of students in their first semester as college students (56.7%), 15.3% were sophomores, 8% were juniors and 7.2% were seniors and/or had been in college for more than 3 years. Students were between the ages of 18 and 48 years old, with 85% of students between 18 and 23 years old. A majority of respondents were females (62%) and mainly identified as white/Caucasian (48%), or Hispanic/Latinx (34%).

Conclusion

The results of this study give us new knowledge concerning the importance of connecting college students to their local campus outdoor environment and engaging them to participate further in outdoor recreation activities. As several campuses struggle to retain students and create strong social connections and campus community, promoting outdoor recreation opportunities for students, especially in their early years, could have some significant benefits both to students and college campuses. While outdoor retention programs have shown significant benefits, it is possible that large-scale events like the ONCC could have similar benefits. While this study did not show significant findings directly related to the ONCC, it did show that participation in outdoor recreation activities, as well as frequency and interest, were connected to place attachment and well-being. There also seems to be some concerning findings about well-being of college students. It is possible that students were more stressed towards the end of the semester, as well as have less time to participate in outdoor recreation activities. More evaluations are warranted, especially to compare students who are less likely to participate, or do not report a current interest in outdoor recreation activities, but may be interested in other campus activities. Extended research to evaluate how college success and retention are linked to local outdoor recreation also warrants further, especially in the current higher education climate that favors rapid graduation. The results of this study are limited, in part because of the geographic location of this study, the difference between the two universities who participated and the size of the sample. Due to the scale and nature of the ONCC, several opportunities exist for a larger scale study.

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Mechanisms in Outdoor Adventure Education that Facilitate Transformational Learning

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Summary: We will discuss what aspects within an individual might predispose them to have a transformational learning experience and what aspects within an outdoor adventure education course might cause someone to have a transformational learning experience.

Mechanisms in Outdoor Adventure Education that Facilitate Transformational Learning

Outdoor adventure education (OAE) students commonly proclaim that they “transformed” in the backcountry. These experiences forced them to learn about themselves and how to interact with others in new and important ways (Sibthorp, Paisley, Furman, & Gookin, 2008). Students posit that they understand themselves and the world in new ways, which suggests the students underwent a transformational learning (TL) experience (Mezirow, 1991). But what, exactly, do students mean when they say they have been transformed? Is the transformation caused by characteristics within the student, activities within the experience, or a combination of the two? To inform these questions, we need to better define what students mean when they call their OAE course transformational. If we can identify the mechanisms or activities that drove their transformation, we can continue to unpack the “black box” of OAE (Ewert, 1983) and better answer questions about how what occurs on courses leads to particular student outcomes.

All people hold assumptions about how the world operates. These assumptions are acquired from the people who surround us in childhood, and later, through the experiences we have. Transformational learning occurs when an individual critically evaluates their assumptions, which leads to them reconsider what they think, and experiment with new ways of thinking and behaving (Mezirow, 1991). The result of a TL experience is often perspective transformation (PT) (King, 2009). According to Mezirow (1991), TL is typically instigated by a disorienting dilemma, a moment that upsets a person’s normal ways of operating. As an example, Stone, Duerden, Duffy, Hill and Witesman (2017) found just over half the participants in study abroad programs experienced PT. They argued that being placed in a “high contrast, cross-cultural” (p. 29) environment created the disorienting dilemma that led students to understand the world differently.

Certain aspects of an experience may be more likely to lead to TL. As Stone, Duerden, Duffy, Hill and Witesman (2017) noted, a study abroad experience places students in a new culture that may contrast with what they experience at home. Interacting with local residents leads students to think differently.

However, it seems equally likely that individual characteristics may predispose a person to engage in a transformational experience. A person may have certain push factors (Dann, 1977) that drive them towards a study abroad program—or, alternatively, an OAE course. Participants who come to an experience seeking to change may be more likely to undergo PT. Thus, there are likely aspects within the individual that facilitate transformation learning, but aspects of the learning experience are also likely to instigate transformation.

The purpose of this study was to understand whether TL applies to OAE learning outcomes, and if so, to understand what drives TL in outdoor adventure education students enrolled on OAE college semesters. More specifically, we investigated what characteristics within the individual student predispose them to have a TL experience versus what characteristics within the educative experience lead to TL.

Methods. We invited all NOLS semester students in spring 2018 to participate in the study by sending two emails in the two-week period prior to the start of their semester. Each 90-day course included two technical skills components and a wilderness medicine section. Technical components included mountaineering, backpacking, rock climbing, canyoneering, rafting/kayaking, and skiing. Participants took a pre- and matched post-course survey. In addition, we conducted semi-structured interviews with 20 students to elaborate on survey findings.

The pre/post course survey contained two scales: a modified version of King's (2009) Learning Activities Survey (LAS), and a scale that included four subsets that measured DiClemente, Proschaska and Norcross' (1992) Readiness to Change stages. The semi-structured interviews were modeled on the LAS.

Results and Discussion. We administered the pre and post-course surveys to students enrolled on NOLS semester courses in the spring of 2018. The initial sample included 173 total participants and included 58 female and 108 male participants (7 participants did not report their gender). One hundred twenty eight of these completed the information on post course perspective transformation and potential course mechanisms; 45 completed both pre and post tests including information on readiness to change. After data cleaning, the retained sample included 145 participants. We interviewed a subset of 20 students in summer 2018.

Based on the LAS, 118 students experienced PT on their NOLS course and 26 did not. We performed a chi-square test to compare the frequency of PT post-course based on a participant's pre-course readiness to change stage, and found a non-significant interaction ($X^2 = 1.909, p = .39$). We also performed a chi-square test to compare the frequency of PT post-course based on whether a participant experienced PT in the semester preceding their NOLS course, and found a non-significant interaction ($X^2 = .53, p = .46$). These findings indicate that a student's readiness to change and prior PT do not affect the likelihood that they experience PT on a NOLS course.

Students who experienced PT identified with an average of 7 of the 10 stages of Mezirow's TL whereas students who did not experience PT identified with an average of 4 stages. Students identified which of 20 course characteristics they associated with PT. We categorized them by quartile into third/high (instructor support and challenge, peer support, personal reflection, overcoming hardships, deep thought, journaling), second/medium (daily activities like hiking, readings, activities in camp, independent student travel, self-evaluation) and first/low (peak experiences, technical skills, being leader of the day, debriefing and verbal discussions, the non-traditional structure of the course, writing about your concerns, the NOLS curriculum, an event that occurred at home during the course).

Qualitative interviews revealed that students found the remoteness of the social group an important structural component (Sibthorp & Jostad, 2014). The course content, such as hiking, learning technical skills and how to give and receive feedback, gave them material to process by themselves in

reflective moments or with the group. Group dynamics were especially important to their learning as were instructors, who used a combination of support and challenge to scaffold student growth. Most students said the course changed them, but for many, this was because they uncovered the reasons they hold beliefs rather than because those beliefs were transformed. Most students reported being in a transition period (a recent graduate, taking a gap year, needing a break from school) and having been previously dissatisfied with their present circumstances.

These findings suggest that students who attend NOLS semesters are undergoing transition that may make them more likely to experience PT. NOLS provides them time and space away from home where they can think about what they value without being distracted by activities like work, school and relationships. However, the PT appears to be primarily an elaboration of existing frames of reference as opposed to the larger epistemological shifts (Mezirow, 2000).

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Success and Failure as Pedagogical Tools in Outdoor Education

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Summary of the Research Presentation

Research was conducted to understand the success and failure beliefs and ensuing instructional practices of outdoor education instructors. Data indicated that the magnitude of success and failure beliefs differed depending on one's age, years of professional experience, gender, organizational affiliation, and the activities taught. While success and failure beliefs differed among instructors, there were no significant differences in reported pedagogical practices. These results are discussed and implications are identified.

Success and Failure as Pedagogical Tools in Outdoor Education

Introduction: Since the introduction of outdoor adventure education (OAE) programming in the United States, researchers have examined both the outcomes of participation (e.g., Furman & Sibthorp, 2014; Overholt & Ewert, 2015) as well as the mechanisms used to obtain these outcomes (e.g., Paisley, Furman, Sibthorp, & Gookin, 2008). While instructor-orientated mechanisms, such as coaching, debriefing, and teaching formal classes contribute to student learning on OAE courses (Paisley, Furman, Sibthorp, & Gookin, 2008), few studies have been conducted to identify the pedagogical practices used in OAE settings (e.g., Pelchat & Goc Carp, 2012). And fewer still have explored the beliefs underlying instructors' pedagogical practices (e.g. Hill, 2010) and how these beliefs influenced instructors' classroom behaviors, specifically in regards to the use of success and failure.

Instructors who utilize pedagogical techniques designed to foster student success often structure learning and problem-solving activities at the beginning of learning activities (Kapur, 2011). These structures are implemented to maximize performance and foster learning (Kapur & Bielaczyc, 2012), and are theoretically situated in Vygotsky's notion of the Zone of Proximal Development (Vygotsky, 1978). In educational settings, structure is added via the use of various scaffolds. These scaffolds enable novices to solve problems or complete tasks that are currently beyond their abilities (Wood, Bruner, & Ross, 1976). Scaffolding the learning process offers learners multiple benefits including: (1) making complex tasks attainable; (2) instructors managing learning processes so students can solve authentic problems; and (3) directing learners' attention to salient components of a problem (Reiser & Tabak, 2014). As Kapur (2008) noted, scaffolds are implemented to cultivate learning and minimize the possibility of failure. In addition, proponents argue that productive success strategies are more efficient, more effective, lead to less confusion, and fewer student misconceptions (Kirschner, Sweller, & Clark, 2006).

On the other hand, productive failure educational designs encourage novices to try and even fail at complex, ill-structured tasks, which are often beyond the students' current abilities. Researchers believe that this process can, under certain conditions, be beneficial for developing deeper conceptual understanding (Kapur & Bielaczyc, 2012). While productive failure learning regimes may minimize short-term performance, they have been shown to cultivate long-term learning (e.g., Kapur & Bielaczyc, 2012). While productive success-orientated instructors are often concerned with mistakes and failure, specifically the idea that once an error is made it will be learned (Bjork, Dunlosky, & Kornell, 2013), the productive failure literature demonstrates that rather than being detrimental, mistakes and failure have the potential to be opportunities for growth and learning (e.g. Kapur, 2012).

While there is recognition, at the OAE institutional level, that learning through failure can be beneficial (Gookin, 2015; Outward Bound [OB], 2015), learning activities are facilitated in wilderness

contexts by OAE instructors who are far removed from administrators' purview. Previous research has noted that instructors' pedagogical beliefs have tremendous impact on their classroom behavior (e.g. Fang, 1996; Pajares, 1992) and ultimately determine how they structure their learning activities. Therefore, the purpose of this study was to examine the success and failure beliefs of OAE instructors, explore the various factors influencing these beliefs, and investigate the ways in which these beliefs influenced pedagogical practices.

Methods: The data for this study were gathered from a sample ($n=253$) of OAE instructors over 18 years old who had, at minimum, taught one OAE course within the past year. Data were gathered using a 29-question, self-developed, online questionnaire consisting of close-ended questions, including Likert-type items, response continuum questions, and demographic questions. Sixteen Likert-type items assessed participants' success (e.g., "Initial learning and practice of a new concept or skill should be structured so that students understand it right away") and failure (e.g., "Learners should be allowed to struggle and possibly fail at tasks that may be beyond their current abilities") beliefs. Four response continuum questions ($\alpha = .74$) presented respondents with a typical scenario encountered in an OAE context (e.g., "When students make mistakes, I...") and asked participants how they normally respond. A success-based response (e.g., "stop them and help them correct their error") was positioned on one end of the continuum and a failure-based response (e.g., let them continue until they realize their error) was positioned on the other. Four additional response continuum questions ($\alpha = .66$) asked respondents to indicate how they preferred to learn using the same stems and anchoring statements from the previous questions. Demographic questions gathered information regarding participants' age, gender, professional experience, organizational affiliation, and the activities they taught.

Results: Across the 16 belief items, one-way ANOVAs identified significant differences in both the success and failure beliefs of the various demographic categories. For example, when reviewing success beliefs, mountain-based (primarily taught rock climbing/mountaineering) instructors more strongly agreed with the notion that allowing students to perform a task incorrectly ultimately hinders performance than their peers who instructed land-based (primarily taught backpacking) courses. As for failure beliefs, instructors aged 30 and under expressed more agreement with the statement "Initial learning that is effortful or challenging fosters greater long-term learning" than their elder colleagues aged 41 and above. In addition, instructors' personal learning preferences were strongly correlated with their reported instructional practices ($r = .60, n = 253, p < .01$). While there were significant differences in the magnitude of reported success and failure beliefs among these instructors, the mean instructional practice score landed on the productive failure end of the continuum. Ultimately, the divergent success and failure beliefs expressed by these instructors did not yield significantly different instructional practice mean item scores among the groups.

Discussion & Implications for Practice: While individual respondents reported varying success and failure beliefs, the ambiguity present in OAE wilderness classrooms impels students to solve ill-structured problems, often without full knowledge or necessary information. These inherent features of the OAE instructional environment may result in students making errors or ultimately failing. However, making mistakes or failing has the potential to be germane for long-term learning so long as instructors help students notice features of the problem-solving context they missed or glossed over, differentiate between appropriate and sub-optimal decisions, tools, or techniques, and attend to critical details presented in the ill-structured environment. In essence, instructors are important vehicles in the knowledge consolidation process. While there is the potential for significant learning to occur in wilderness classrooms, instructors should ensure that failure experiences are facilitated productively so that the negative affective, psychological, or physical consequences of failure are minimized, while the benefits of failure, such as, maximizing long-term learning, are realized.

On an administrative level, it may behoove administrators preparing instructor teams for field-based work to facilitate conversations about the use of success and failure. This discussion could better prepare instructors to help students learn from both success and failure and it may facilitate the development of a unified vision for the use of success and failure pedagogical techniques among

instructor team members. Ultimately, this may prevent students from receiving mixed messages, which could lead to student frustration or discouragement.

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Critical and Transferable Impacts of Camp Participation: Implications for Experiential Educators

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Abstract

This study examined how former camp participants believe their camp experiences influenced particular developmental outcomes and identifies primary learning contexts for these outcomes. This study is the second phase of a larger multi-year longitudinal study on the role of camp in developing skills, beliefs and behaviors related to college and career success. The study involved 528 former camp participants aged 18-25 from across the U.S. Findings provide insight on the critical transferable outcomes that can be significantly attributed to camp experiences.

Critical and Transferable Impacts of Camp Participation: Implications for Experiential Educators

Out-of-school-time (OST) learning environments are important contributors to the development of key social and emotional skills and the support of positive youth development (Durlak, Weissberg, & Pachan, 2010; Fredricks & Eccles, 2006; Putnam, 2015). In particular, youth participation in summer camps has been associated with developing positive peer relationships, leadership skills, independence, and positive self-identity (Henderson, Whitaker, Scanlin, & Thurber, 2007). While there are numerous studies documenting camp-related outcomes (e.g., Garst & Ozier, 2015; Sibthorp, Bialeschki, Morgan, & Browne, 2013), there remains a need to identify outcomes where camp is especially impactful and understand how skills and particular interpersonal and intrapersonal assets developed at camp transfer to other contexts. Additionally, researchers and practitioners would benefit from additional research that contributes how camp contributes to key developmental outcomes as compared to school, work, home, organized sports, and other learning environments.

Therefore, the purpose of this study was to examine how former camp participants believe their camp experiences influenced particular developmental outcomes and identify primary learning contexts for these outcomes. This study is the second phase of a larger longitudinal study on the role of camp in developing skills, beliefs and behaviors related to college and career success.

Methods

This study used a mixed-method, cross-sectional, retrospective approach to address the research questions. The first phase involved interviews with 64 former campers between the ages of 18 and 25 with the purpose of identifying key camp-related outcomes. Interviews were transcribed and coded using descriptive, axial, and focused coding that identified themes and connections among these themes (Miles, Huberman, & Saldana, 2014). Two researchers worked together to identify, refine, and verify themes. This coding resulted in 18 outcome areas associated with camp participation: (1) relationship skills; (2) teamwork; (3) learning how to live with peers; (4) empathy and compassion; (5) organization skills; (6) responsibility; (7) independence; (8) perseverance; (9) career orientation; (10) development of self-identity; (11) emotion regulation; (12) self-confidence; (13) appreciation for diversity; (14) willingness to

try new things; (15) living in the moment; (16) leadership skills; (17) leisure skills; and (18) affinity for nature.

Following phase one of this study, a survey instrument was designed and bench-tested with 173 college-aged undergraduate students. The instrument consisted of questions in three main areas: (1) a ten-point rating scale assessing the importance of learning outcomes in everyday life; (2) a ten-point scale assessing the role of camp in developing these outcomes; and (3) a section where participants identify the primary setting for developing each outcome (e.g., camp, school, work, home, sports, etc.). See Table 1 for example items. The bench-testing allowed the research team to assess content validity and reliability.

For phase two of the study, participants were recruited through an online panel. Respondents from a national sample included adults between 18 and 25 who had attended camp in their youth. The research team analyzed the data using descriptive statistics. First means were calculated in each outcome area for importance in everyday life and camp's role in its development. Second, means were then plotted along two axes. Two cut-points were established: one from the grand mean of the importance of outcomes to everyday life and the other from the grand mean of the role of camp in the development of the outcome. This resulted in four quadrants:

- Quadrant I: Outcomes of high importance where camp played a significant role.
- Quadrant II: Outcomes of high importance but camp played a less significant role.
- Quadrant III: Outcomes of lesser importance and camp played a less significant role.
- Quadrant IV: Outcomes of lesser importance where camp played a significant role.

Finally, responses among those that rated camp as highly critical for a particular outcome (scores of 9 or 10) were analyzed to identify the primary learning context.

Results

The research team collected data from 528 respondents from across the United States during the winter of 2017-2018. Within the sample, 51% were female, 66% were white, 15% were African-American, 8% were Hispanic or Latino/a, and 4% were Asian-American. Respondents ranged from 18 to 25 with a median age of 21 and 99% held a high school degree and 31% held an associate's degree or higher. Respondents had a mix of experience in day and overnight camps with 69% reporting that their last camp experience was residential/overnight. A third of respondents reported that they also worked for a camp at some point.

Participants identified that independence, appreciation for diversity, living in the moment, perseverance, relationship skills, and responsibility as outcomes highly attributable to camp and the most important to their daily lives (see Figure 1). The means for each of these outcomes were higher than average of all means (grand means) for both the role of camp and daily importance and appear in Quadrant I (highly attributable to camp and highly important to daily life).

Outcomes that were less attributable to camp but still important to daily life (Quadrant II) included developing self-confidence, living in the moment, emotion regulation, self-identity, and organization. Leisure skills, affinity for nature, willingness to try new things, leadership and teamwork fell into Quadrant IV indicating that the outcomes were highly attributable to camp but less important to daily life as compared to other outcomes. Outcomes in Quadrant III included how to live with peers, empathy and compassion, and career orientation. These outcomes had means indicating that they were less attributable to camp and less important to their daily lives than other measured outcomes.

Among respondents that rated camp as highly critical to the development of particular outcomes, camp was the primary context for developing an affinity for nature (68.8%), learning how to live with peers (55.3%), establishing a sense of independence (44.7%), and developing a willingness to try new things (44.6%). Respondents also identified camp as a primary context for appreciating living in the moment, away from distractions (41.2%), learning to appreciate diversity in terms of background, identity, and perspective (35.4%), and developing leadership skills (34%). Among the other measured outcomes, respondents identified school as the primary context for developing teamwork skills, developing relationship skills, organization skills, and career orientation (see Table 2).

Discussion

The findings from this study expand upon existing research on camp-related outcomes. While phase one of the study identified outcomes similar to extant camp research (cf. Bialeschki, Henderson, & James, 2007; Duerden et al., 2014; Garst & Ozier, 2015), phase two of the study identified outcomes that may be most important to everyday life where camp played a critical role in the development of these outcomes. In this study, these important outcomes highly attributable to camp participation included relationship skills, responsibility, perseverance, independence, appreciation for diversity, and an appreciation for living in the moment. The unique context of camp—being away from home and family in a new social milieu with fewer distractions—appears to support the development of these outcomes effectively. Camp was also identified as a critical context for developing teamwork and leadership skills, a willingness to try new things, an affinity for nature, and general leisure skills (sports, activities). While these outcomes were rated as slightly less important to daily life, means were clustered close to outcomes identified as slightly more important. It is possible that these outcomes are more context dependent and that campers may have fewer opportunity to build on certain camp outcomes (e.g., leisure skills, affinity for nature) back in their lives. Existing research in education emphasizes the importance of opportunity, practice, and support to ensure the transfer of learning to new contexts (see Grossman & Salas, 2011). Finally, this study provided insight into camp's place among other learning environments. Camp proved to be a primary context for developing independence, connecting with nature, and developing relationships with those different from oneself.

Findings from this study are of particular interest to experiential educators as it helps identify the unique contributions the camp environment to the development of many outcomes associated with career and college success. Future research may want to build on this retrospective study by using longitudinal designs to better understand how camp-related outcomes develop over time.

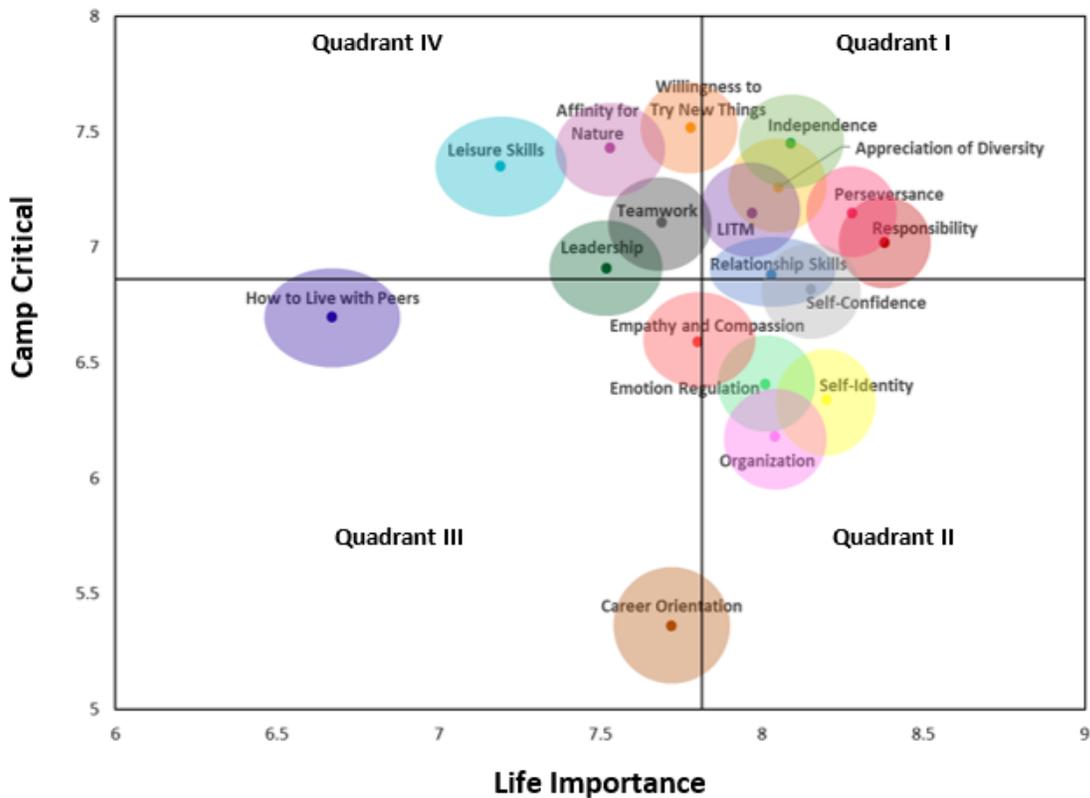
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Table 1: Sample Items

Section 1	Camp was critical to my development of “relationship skills”.	Very False 1 2 3 4 5 6 7 8 9 10 Very True
Section 2	In your daily life, how important are “relationship skills”?	Least Important 1 2 3 4 5 6 7 8 9 10 Most Important
Section 3	In what setting did you primarily learn “relationship skills”	Camp; Home; School; Work; Organized Sports; Church; Other

Figure 1: Camps’ Role in Developing Transferable Learning Outcomes



Note. LITM is an abbreviation for the learning outcome ‘Living in the Moment.’ The translucent circle surrounding each point on the scatterplot represents the confidence interval for each learning outcome (95%). If a confidence interval for any outcome includes the mean of another outcome, they are not statistically different.

Table 2: Primary Learning Context

Outcome	Camp	Home	School	Work	Sports	Other	Church
<i>Affinity for Nature</i>	68.8%	12.1%	6.5%	2.8%	0.9%	3.7%	5.1%
<i>How to Live with Peers</i>	55.3%	12.7%	21.3%	4.7%	4.0%	0.7%	1.3%
<i>Independence</i>	44.7%	8.3%	24.3%	14.1%	4.4%	1.5%	2.9%
<i>Willingness to Try New Things</i>	44.6%	16.7%	20.6%	3.4%	7.4%	2.9%	4.4%
<i>LITM</i>	41.2%	15.8%	13.0%	4.0%	9.0%	6.8%	10.2%
<i>Leisure Skills</i>	37.1%	7.1%	18.6%	3.3%	31.4%	0.0%	2.4%
<i>Appreciation for Diversity</i>	35.4%	5.5%	32.0%	8.8%	4.4%	3.3%	10.5%
<i>Leadership</i>	34.0%	3.1%	31.4%	14.5%	9.4%	2.5%	5.0%
<i>Empathy and Compassion</i>	30.9%	13.7%	26.6%	7.2%	5.0%	0.7%	15.8%
<i>Teamwork</i>	30.8%	1.2%	36.1%	7.1%	20.1%	1.2%	3.6%
<i>Relationship Skills</i>	30.6%	4.9%	41.7%	4.2%	11.1%	0.7%	6.9%
<i>Perseverance</i>	28.8%	6.5%	33.2%	12.0%	13.6%	1.1%	4.9%
<i>Self-Identity</i>	27.3%	25.8%	21.1%	5.5%	4.7%	2.3%	13.3%
<i>Emotion Regulation</i>	25.0%	23.3%	25.0%	7.8%	12.9%	0.0%	6.0%
<i>Career Orientation</i>	23.7%	11.8%	48.4%	8.6%	4.3%	2.2%	1.1%
<i>Self-Confidence</i>	22.6%	19.4%	27.7%	15.5%	9.0%	1.3%	4.5%
<i>Responsibility</i>	18.0%	37.9%	21.1%	10.6%	6.2%	1.9%	4.3%
<i>Organization</i>	16.3%	21.1%	46.3%	10.6%	5.7%	0.0%	0.0%

Note: **Bold** indicates highest percentage of respondents.

Situating Quagmire: Simulation-Based Gaming as Preparation for Field-Based Study

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Research Summary

The purpose of this study was to evaluate the effectiveness of *Quagmire*, a game-based simulation designed to introduce students to the complexities of resource management, in preparing outdoor recreation studies students for a week-long field-based learning experience in Capital Reef National Park. Results indicated *Quagmire* augmented student learning in a variety of ways and prepared them to interact intelligently and confidently with resource management personnel and local stakeholders during their week-long field excursion.

Situating Quagmire: Simulation-Based Gaming as Preparation for Field-Based Study

Since the late 1950s, educational simulations have been regularly utilized in a variety of academic and non-academic settings including business education, the social sciences, medical education, economics, environmental education, military trainings, and tourism and hospitality (e.g., Armstrong, 2003; Paschall & Wüstenhagen, 2012; Sutcliffe, 2002). Advocates suggest that the active, experiential nature of educational simulations increases student interest and motivation, provides opportunities for students to articulate and defend ideas, helps learners make connections among discrete concepts, and provides students with opportunities to practice and refine requisite skills necessary for future success in academic and professional settings (Dorn, 1989; Greenblat, 1973; Silberman, 1996).

One simulation-based game designed for Outdoor Recreation Studies (ORS) is Dustin's *Quagmire* (1977). *Quagmire* is specifically designed for outdoor recreation and/or natural resource management students who aspire to work for public land management agencies, such as the U.S. National Park Service (NPS). During game play, participants assume specific roles (e.g., politician, park manager, local business owner) in order to discuss and debate future management decisions in fictitious "Evergreen National Park." As "Evergreen National Park" is experiencing increased use, participants must decide which of the many competing demands, articulated by various stakeholders, should be adopted. While *Quagmire* has been employed in both online (e.g., James, 2003) and face-to-face contexts (e.g., Dustin, 1977), its efficacy in preparing students to better understand land management complexities before visiting an actual protected area has not been empirically evaluated. Therefore, the purpose of this study was to evaluate the effectiveness of *Quagmire* in preparing ORS students for a week-long field-based learning experience in Capital Reef National Park (Capital Reef), USA.

Methods: Graduate students in a *Theories of Experiential Education* class at the University of Utah collaborated with teaching faculty from an undergraduate course in Parks, Recreation, and Tourism (PRT) for ORS students at the University of Utah in order to situate *Quagmire* in Capital Reef. Graduate students researched current issues facing park administrators and incorporated them into the simulation.

Three separate rounds of game play were designed, and each round built upon participant decisions made in the preceding round. The simulation was held over two days and game play lasted for approximately four hours. In addition to simulation role-play, participants also engaged in reflective activities facilitated by game designers.

One-week after the simulation was completed, the PRT undergraduate students traveled to Capital Reef for their week-long immersion experience. During the field-based component, PRT students met with NPS staff, participated in field-based experiential learning regarding geology, ecology, and cultural history of the park, and applied previous coursework to their experience. Students wrote essays and discussion responses ($n=71$) about *Quagmire* on two separate occasions, in between the two weeks of game play and following the visit to Capital Reef. The essays and responses were gathered and coded by two researchers familiar with learning via educational simulations and outdoor recreation studies. Coders utilized a provisional coding strategy (Saldaña, 2016) developed *a priori* during the literature review process. The codes were based on the *Preparation for Future Learning* (PFL; Bransford & Schwartz, 1999) and *Landfullness* (Baker, 2005) frameworks, and were used to assess how students' reported field-based learning was enhanced through their participation in *Quagmire*.

Results: Preparation for Future Learning. Coding by two independent coders yielded a strong level of agreement, as represented by Cohen's Kappa values ($\kappa=.89$), across the seven different PFL codes (Learning by Doing: .92; Problem Solving: .90; Differentiated Knowledge: .87; Errors: 1.00; Letting Go: .88; Affective: .76; Experiences: .88). Results suggested *Quagmire* augmented student learning in a variety of ways. Of the seven PFL codes, *learning by doing*, which was defined as opportunities for learners to gain knowledge during learning activities from accompanying resources, trying things out, and/or feedback, was coded most frequently, and characterized succinctly by this representative quote, "Quagmire played an absolutely positive role in our learning. In addition to visiting the exact site shortly after, it kept our interest, kept us searching for answers, and captured a new way of thinking for everyone." Ultimately, the active nature of the simulation was particularly salient and helped students better understand pertinent land management processes and issues. While *Quagmire* bolstered students' cognitive knowledge about Capital Reef, the NPS, and local stakeholders, gameplay, coupled with the subsequent trip to Capitol Reef, cultivated three distinct types of *affective* responses as well: (1) feelings toward Capitol Reef, (2) emotional awareness and regulation arising during participation in the simulation, and (3) increased confidence when meeting with Park staff.

Landfullness. Analyses by two coders yielded moderate agreement ($\kappa=.60$) across the four landfullness codes (*Deeply Aware*: .79; *Interpreting Land History*: .40; *Sensing Place in the Present*: .64; *Connecting*: .55). Of the four landfullness codes, *sensing place in the present* was coded most frequently; although, only 24% of responses showed evidence of this code. Characteristic quotes described the process whereby students' gained awareness and appreciation of distinctive landscape features within Capital Reef. Delving deeper, students envisioned how development would affect the landscape in Capitol Reef and thought about how management priorities affect visitors' experiences. As one student commented, "[Before visiting Capitol Reef], I wouldn't have thought very hard about the overflowing parking lots other than to say they need more parking...[now] having more and more people coming to the park would wear on already wearing resources." While we initially speculated that ideas about landfullness would be a prevalent component of students' written reflections, PFL-related observations were by far more ubiquitous.

Discussion: These results characterize the ways in which *Quagmire*, revised to address current management concerns in Capital Reef, prepared ORS undergraduate students to maximize their learning during a week-long excursion to the park. Results suggested that students were able to identify tangible ways in which *Quagmire* complemented their learning across a variety of dimensions. Notably, *Quagmire* helped them better understand the issues faced by land managers and local stakeholders and prepared them to converse fluently with park personnel. While certain noncognitive skills, such as confidence and affective feelings toward Capital Reef, may have been increased by participation in *Quagmire*, others, such as tolerance for ambiguity or open-mindedness, were less evident. For example, it

was evident from the coding of participant responses that specific preparation for future learning codes addressing reevaluation of participants' beliefs (i.e., 'letting go') were less evident in this sample. Regardless, it appeared that Quagmire assisted students' recognition of salient features of the learning environment and deepened their perspectives of important management functions therein. In conclusion, simulation-based learning helped enhance these students' on-site learning experiences and may be a useful pedagogical tool for bolstering learning in other situated learning contexts.

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“To Use or Not to Use”: Understanding Smartphone Use in High-Alpine Environments

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As smartphone use continues to become more embedded within daily life, identifying the factors driving their use in extreme environments may have numerous meaningful implications. Little is currently known about the factors driving mountaineers' intentions to use smartphones in high-alpine environments. Therefore, the purpose of this study was to examine the extent to which attitude, subjective norm, and perceived behavioral control predicted mountaineers' intentions to use smartphones in high-alpine environments.

“To Use or Not to Use”: Understanding Smartphone Use in High-Alpine Environments

Introduction

The growing use of handheld electronic communication devices, such as smartphones, in everyday life may drastically change the way people interact with their environments (Martin & Blackwell, 2016; Pohl, 2006; Worley, 2011). While the use of these kinds of devices in natural settings may afford users numerous benefits, negative consequences may also exist (Ewert & Shultis, 1999; Pohl, 2006). Literature suggests that the severity of these consequences may increase in extreme environments (Martin, 2017; Martin & Blackwell, 2016). As such, smartphone use in high-alpine environments may have numerous implications for users' safety and experiences, as well as land managers' decision-making (Martin, 2017; Martin & Blackwell, 2016). High-alpine environment activities often consist of glacier travel, cold temperatures, increased exposure to risk, technical climbing abilities, and extended expedition lengths (Linxweiler & Maude, 2017).

As the use of smartphones in wilderness settings continues to increase, there is a need to better understand the factors influencing their use in high-alpine environments. According to Ajzen (1991), a person's intention to perform a behavior directly precedes the performance of the behavior. As such, understanding mountaineers' intentions to use smartphones in high-alpine environments may provide significant insight into the factors influencing their actual behaviors (Ajzen, 1991; Miller, 2017). Investigating the factors that predict mountaineers' intentions could provide insight into the potential impacts of smartphone use in high-alpine environments.

The theory of planned behavior (TPB) could be a useful theoretical framework for examining the factors driving mountaineers' intentions to use smartphones in high-alpine environments (Ajzen, 1991; 2013). Behavioral intention can be explained through an individual's attitudes, subjective norm, and perceived behavioral control toward a specific behavior (Ajzen, 1991; 2013). Through a more robust understanding of TPB factors that may influence behavioral intention, smartphone use in high-alpine environments may be more thoughtfully discussed. Little is currently known about the factors driving the use of smartphones by wilderness users, especially in high-alpine environments. Therefore, the purpose of this study was to examine the extent to which attitude, subjective norm, and perceived behavioral control predict mountaineers' intentions to use smartphones in high-alpine environments. Based on the presented literature, the following hypotheses were tested:

- H₁: Attitude will be a significant predictor of mountaineers' intentions to use smartphones in high-alpine environments.
- H₂: Subjective norm will be a significant predictor of mountaineers' intentions to use smartphones in high-alpine environments.
- H₃: Perceived behavioral control will be a significant predictor of mountaineers' intentions to use smartphones in high-alpine environments.

Methods

The following study used purposive and convenience sampling methods to derive a sample of self-identified international high-alpine mountaineers. Prior to survey data collection, an elicitation study was conducted to discern the salient beliefs about mountaineers' smartphone use in high-alpine environments. Content analysis was used to analyze elicitation study data. Survey data were collected through an online survey via online mountaineering listservs, blogs, and social media. The survey was developed referencing TPB manuals (Ajzen, 2013; Francis et al., 2004) and operationalizes the use of smartphones through a series of related direct and indirect measurement items. Preliminary data analysis examined sample TPB means, standard deviations, and distributions for direct and indirect variables. Further data analysis used correlation analyses to determine the possibility of significant relationships between TPB variables. A multiple regression analysis was used to determine the extent to which direct and indirect measures of Attitude, Subjective Norm, and Perceived Behavioral Control predicted intentions. All results were determined statistically significant at $\alpha < .05$.

Results

A total of 31 mountaineers varying in age (26 - 62), gender (20 males), and depth of mountaineering experience (4 - 45 years) from 12 countries participated in the elicitation study. Elicitation study results indicated that a majority of the mountaineers surveyed used smartphones during high-alpine expeditions and highlighted smartphones' multipurpose utility as important to their use. A total of 228 mountaineers completed the TPB survey, however only 167 cases were usable. Mountaineers (128 males) ranged in age (18-70, $\bar{x} = 37.81$), years of mountaineering experience (1-50, $\bar{x} = 12.61$), and country (37 distinct countries). Descriptive statistics revealed that mountaineers had overall strong intentions ($\bar{x} = 5.53$) to use smartphones on their next high-alpine expedition. Correlation analysis indicated statistically significant ($p < .001$) relationships between all direct TPB measures and intention ($r = .607$ to $.824$). Results from the multiple regression suggest that mountaineers' general attitudes, subjective norms, and perceived behavioral control explained 73% of the variance ($R^2 = .725$, $F(3, 163) = 143.070$, $p < .001$) in overall intention. Correlation analysis indicated statistically significant relationships ($p < .05$) between all indirect measures and intention ($r = .159$ to $.539$). Indirect TPB measures explained 51% of the variance in mountaineers' intentions ($R^2 = .512$, $F(11, 155) = 14.807$, $p < .001$), with attitudes toward smartphones as a safety device being the most important predictor, $\beta = .264$, $p < .001$. Mountaineers' attitudes toward smartphones as a navigation device was the second most important predictor, $\beta = .247$, $p < .001$. Perceptions of poor network access ($\beta = .226$, $p = .001$), subjective norm of mountaineers like them ($\beta = .162$, $p = .032$), perceptions of battery life ($\beta = .128$, $p = .045$), and attitudes toward smartphones as recording devices ($\beta = .143$, $p = .034$) were also significant predictors of overall intention.

Discussion

As smartphone use becomes more embedded within daily life, identifying the factors driving their use in extreme environments may have numerous meaningful implications. Study results suggest that mountaineers' attitudes toward smartphone use, especially their attitudes toward smartphones' utility as safety and navigation devices, were the most important factors driving their intentions to use them during their next expedition. These findings suggest that although network access and recording their experiences were not the most important factors influencing mountaineers' intentions; however, as network access and smartphones' recording capability continue to improve these factors may become more important reasons for smartphone use in high-alpine environments. The results also indicated that mountaineers' perceived norms of highly skilled mountaineers were not influential to their intentions, suggesting that the trends of lesser profile mountaineers are the most important referent others. These results may contribute to a more robust understanding of the factors driving the changing nature of

technology use in high-alpine and other wilderness environments and may be useful for land-managers, guides, and other wilderness users. As smartphone technology continues to become more advanced, continued examination of their use in extreme environments may be warranted. Future research should focus on understanding smartphones' impact on decision-making in high-alpine and other wilderness environments.

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San Francisco Youth Outdoor Recreation Intentions through Themed Messages

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Introduction. Previous literature has documented the health benefits of spending time in nature (Charles, Louv, Bodner, Guns, & Stahl, 2008; Pretty, Peacock, Sellens, & Griffin, 2005; Ryan et al., 2010). Benefits that accrue from outdoor environments include physical, cognitive and mental health improvements (e.g. Hillman, Erikson, & Kramer, 2008; Ryan et al., 2010; Wolch et al., 2011). In addition, spending time in a green area is linked to better concentration, problem-solving, academic outcomes, (Herzog, Black, Fountaine, & Knotts, 1997) lower rates of obesity, and reduced screen time (Dadvand et al., 2014). Time in nature can have a positive impact on cognition, self-regulation, and attention (Dadvand et al., 2015). However, many Americans, especially minority youth, are increasingly disconnected from nature (Lougheed, 2008).

Greater barriers to the outdoors are reported by minority groups, including race/ethnic minorities, or those of low socio-economic status (Larson, Green, Cordell, 2011; Wilhelm-Stanis, Schneider, Chavez, & Shinew, 2009). Long-term barriers could impact one's attitude toward and intent to recreate outdoors. For youth, such barriers are pronounced as they rely on adults or older siblings to provide access to outdoor recreation. This is evident in national rates of participation in outdoor recreation; minority youth are consistently underrepresented. Among youth 6 to 24 years old, Caucasian youth accounted for 70% of all outdoor recreation participants, compared to 12% Hispanic youth and 9% African-American youth (Outdoor Foundation, 2016). One reason for a lack of participation could be living situations; minority groups are more likely to live in crowded urban areas. In a 2011 study; 58 American metropolitan areas were over 50% non-white, up from 43% in 2000 (Brookings, 2011). Youth who live in urban areas may struggle to access the outdoors due to cost, lack of information, family obligations, or lack of social support or recreation partners (Shores, Scott, & Floyd, 2007). For families in urban areas, parental attitudes about safety and the outdoors may discourage participation. This perception could stem from real events, personal experiences, the age or gender and perceived risk to their child, or media coverage (Austin, Furr, & Spine, 2002). If urban, minority youth spend more time indoors, this time is likely sedentary and can result in negative health consequences (Francis, Lee, & Birch, 2003). Taken together, urban living and indoor time put minority youth at greater risk for poor mental and physical health outcomes.

One framework for understanding how urban youth perceive the outdoors is through the Theory of Planned Behavior (TPB) (Ajzen, 1985), which posits that behavioral intention consists of attitude toward, social norms of, and perceived behavioral control about a desired behavior. Applications of the theory to urban minority youth include not personally valuing outdoor recreation, perceiving that friends or family do not value it, or lacking access to outdoor, natural areas. If recreation professionals understand what might influence youth to recreate outdoors, they could create targeted programs and messages.

The authors of the study presented here previously conducted listening sessions to understand the motivations, interests, and reasons for recreating outdoors. The themes that emerged included Connect with Family and Friends, Unplug & Escape, and Adventure. Youth also said that social media and mobile technologies would be an effective way to deliver such messages to youth. Although it may seem counterintuitive to engage youth via screens, much literature recognizes the potential of social media to influence youth behavior. Thus, the purpose of this study was to use a quasi-experimental design to test the effectiveness of themed video messages on urban minority youth's attitudes, social norms, perceived behavioral control, and behavioral intentions to recreate outdoors.

Method. The effectiveness of three themed-video messages (Escape & Unplug, Adventure, Connect with Family and Friends) at influencing behavioral intentions to recreate outdoors was examined through a quasi-experimental design. A control group and the themed messages were randomly assigned to urban, mostly minority youth (n=372) ages 12-16 living in San Francisco, California. The three themed messages and the control, and race/ethnicity were used as factors. After watching a video, or no video for the control, participants took a 17-item survey measuring six themes from the listening sessions and four TPB dimensions as the dependent variables. The analysis included a 4x4 ANOVA.

Results. Four race/ethnicity groups were included in the analysis: Hispanic/Latino, (20%) White (non-Hispanic) (20%), Black/African American (25%), and Asian (23%). Of the 372 youth, 45% were female. Most (84%) spoke English at home as the primary language. The majority of the youth were 14 (28%) or 15 (26%) years old. For the analysis of the six listening session items, significant differences in means scores between the three treatment videos and the control group were present for “I would want to do something challenging.” For race and ethnicity, there were significant differences on two of the six items. Asian was significantly lower than White (non-Hispanic) and Black/African American for “I would want to do something challenging.” Asian was significantly lower than the three other groups for “I would want to have a new experience,” and Asian had the lowest mean score on four items, while White had the highest mean score on four items. TPB items were aggregated with two items for behavior control, and three items each for social norms, attitudes, and behavioral intentions. For the behavioral control TPB dimension connect with friends and family was significantly higher than the other two treatments, and the control group. Significant differences were present for all four dimensions of TBP by race/ethnicity. For behavioral control, White and African American scores were significantly higher than Asian and Hispanic/Latino. For social norms, White had significantly higher scores than Hispanic/Latino and Asian. For attitudes, White was significantly higher than Asian. For behavioral intentions, African American was significantly higher than Asian, and White was significantly higher than Hispanic/Latino and Asian. White had the highest mean scores on all four dimensions and Asian was the lowest.

Discussion. If it is assumed that all youth should have access to nature in order to experience and benefit from its health-affirming properties, then messages that address the interests or barriers of youth and specific demographics should be used by park and recreation professionals. With the exception of behavioral control, overall, the mean scores were high, indicating that there is a desire among youth to recreate outdoors. Themed messages, as were tested in this study, are a low-cost medium through which outdoor recreation professionals can engage youth. Emphasizing the adventurous, or social aspects of an outdoor opportunity such as spending time with family or friends may appeal to youth. Among groups, the TBP responses of White respondents and African American/Black respondents are more similar than not. In particular, Asian youth are less likely to perceive outdoor recreation as a social norm, have a positive attitude about it, or be able to access outdoor recreation. But the reasons for this are not that clear. Previous studies of different racial and ethnic groups’ attitude toward the outdoors have found that different groups experience different barriers and have different motivations to recreate (Larson, Green, Cordell, 2011; Wilhelm-Stanis, Schneider, Chavez, & Shinew, 2009). Practitioners in areas with many racial and ethnic groups should offer marketing materials and have staff and programs in a variety of languages, as well as provide programs that acknowledge and respect the rich and unique cultural differences present in their community. Connect with family and friends was significant among many groups, so professionals should create and offer programs and experiences that provide opportunities to create community among family and friends.

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Medical Specialty Camps: Campers/Staff Perceptions using the ACA Youth Outcomes Battery

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Summary: Youth with diabetes have limited access to summer camp. Medical specialty camps afford youth the ability to bond among peers. In 2017, this camp provided a camp experience for 50 youth with type 1 diabetes and their families. Data were collected through the ACA-YOB. Seventy percent of the campers “learned a little or a lot” about the outcomes. This opportunity can provide a meaningful explanation of outcomes during medical camping experiences.

Medical Specialty Camps: Campers and Staff Perceptions using the ACA Youth Outcomes Battery

Youth with type 1 diabetes have limited access to certain outdoor recreation experiences like summer camp, but the gains may be significant (Hill, Gagnon, Ramsing, Kennedy, Hooker, 2015). Summer camps house over 14 million youth and adults within various day and resident camps (2013, ACA). Medical specialty camps afford youth, with a medical condition, the ability to learn, explore, and bond among peers with whom they share a unique, chronic condition. Those medical specialty camps that involve the campers' family into the camping experience provide an opportunity for growth and independence. An increase in cooperation, responsibility and self-control; as well as a decrease in social isolation are some outcomes resulted through camp experiences (Michalski, Mishna, Worthington, & Cummings, 2003). The use of medical specialty camps, in a non-clinical setting, to positively influence youth, whom are considered at risk, within unique population groups like youth with HIV/AIDS (Gillard, Witt, & Watts, 2016), cancer (e.g., Meltzer & Rourke, 2005) and diabetes (Hill et al., 2015) have increased.

Research suggests that proper maintenance and adherence to an organized regimen through good glycemic control are essential skills needed to avoid microvascular and macrovascular complications (Lind et al., 2014). Medical specialty camps (e.g., diabetes camps) generally provide an opportunity for parents to comfortably rely on medical professionals to take care of their child during their absence; as the camp provides access of healthcare to their doorstep. The diabetes camp for this current study, however, encouraged family members to actively engage in, and participate throughout the experience. The American Camp Association (ACA) Youth Outcome Battery was used as a measurement framework for camper outcomes. The ACA sponsored research is salient in that it provides evidence of what many practitioners already know; organized camping is beneficial to the development of youth (American Camp Association, 2005; Henderson, Bialeschki, & James, 2007). The purpose of this study was to determine the camper outcomes (e.g., friendship) and staff perceptions of camper outcomes (e.g., affinity for exploration) at a family diabetes camp.

Methods

In 2017, this volunteer-based camp provided recreation majors a chance to program an outdoor recreation experience opportunity for 50 youth with type 1 diabetes and their families. Camp was designed with a collaborative approach design including a local university, a diabetes center, and the Lions Club. The camp included components of a traditional camp with the inclusion of activities (rock climbing), workshops and parent sessions that provide families the opportunity to share, collaborate, and answer those common rewarding experiences, issues, and challenges that often faced by youth with T1D and their families. The camp was designed to educate, emphasize, and challenge campers in various recreational activities and traditional camp activities, to essentially, enhance the use of skills they learn to combat the daily struggles of having diabetes.

The counselors consisted of recreation majors, recreation faculty members, and healthcare professionals (e.g., diabetes educators) whom were associated with the local diabetes center and volunteer their time at camp. This hands-on experience provided an opportunity for the campers to gain one-on-one support from an adult who is invested in making camp an enjoyable experience. The amount of time that each counselor spends with the campers is essential as they stay with them from the moment they are assigned during registration until the close of camp. Hence the importance of collecting counselors' observations and findings at the end of camp, to better understand their perception about the campers' outcome achievement.

Prior to camper evaluation, consent and assent were collected for each participant. Data were collected through the American Camping Association's (ACA) Camper Learning Scale. The Camper Learning Scale is a composite measure of their camp-related improvement within seven outcomes (i.e., competence, family citizenship, responsibility, interest in exploration, teamwork, and friendship skills). The questions were on a 4-point Likert-type scale ranging from 1 = *I didn't learn anything about this* to 4 = *I learned a lot about this* in regard to, for example, the question "At camp, did you learn how to be

better at making friends?” The three-day family camp was designed around various components often used within a traditional camp (e.g., archery, rock wall, canoeing, horseback riding, etc.) with inclusion of group activities, workshops and parent sessions that focus on the development of youth and proper diabetes self-management. Counselors also completed the ACA Staff Perceptions to determine the counselors’ views of campers’ improvement on five outcomes: affinity for exploration, camp connectedness, perceived competence, responsibility, and independence. The Staff Perceptions measure determines, on a Likert scale of 1-6, the the percentage of campers’ observed five outcomes (e.g., perceived competence). All counselors completed a questionnaire on each of their campers.

Results

The average age of participants was 11 years old, with 41% of them identifying as male. On a scale 1-10 regarding level of enjoyment, the responses averaged 8.7. Findings from the 2017 camp data suggest that campers (n=50) at this family diabetes camp on average, 70% of them “learned a little or a lot” about the seven dimensions (e.g., interest in exploration) of the Camper Learning Scale. Fifteen counselors completed the questionnaires on the the five outcomes (e.g., camp connectedness) immediately following camp. None of the counselors observed 5, but 42% observed 4.5 or better, and 68% observed 3.5 or better. Camp Connectedness (4.2 out of 5) has the highest observed mean score and Responsibility had the lowest (3.7 out of 5).

Discussion

Youth with type 1 diabetes have a need for the camp experience. These results that 70% campers learning “a little or A lot” at this family diabetes camp shows promise. Research of non-medical specialty camps has demonstrated lower gains using the same measure (Hill, Holt, Ramsing & Goff, 2016). Previous research has explored the impact among staff perceptions (Gillard & Roark, 2016), however, continued research is needed to understand its value, especially at medical specialty camps. Other studies have been done with Family Diabetes Camp (e.g., Hill et al., 2015; Taylor, Piatt, Hill, & Malcolm, 2012; McAuliffe-Fogarty), yet few have examined counselors’ perceptions on growth of the campers. The ACA originally developed the ACA Youth Outcomes Battery (YOB) to examine campers’ eleven common developmental outcomes (e.g., friendship skills). To effectively measure “staff perceptions on growth, two new versions of the ACA YOB were designed to allow adults to make reliable and valid judgements about children’s outcome achievement: ACA YOB: Staff Perceptions Version & ACA YOB: Parent Perceptions Version” (ACA, 2014). Gillard & Roark (2016) accentuate the effect that the staff and other adults have on the developmental progression of campers’ while in the camp setting. This opportunity can provide a meaningful explanation of outcomes to the medical team, counselors, staff, and the parents during the camping experience. Thus, provide youth with high medical needs a safe and meaningful outdoor recreation experience.

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Working behind the wall: Health related concerns of Route setters

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Working Behind the Wall: Health-Related Concerns for Route Setters

The number of climbing gyms in the United States has increased by about 6.9% in 2016, with a total of 414 commercial climbing gyms with over \$160 million in revenue (CBJ, 2017). With upwards of 300 colleges and universities across the United States housing a climbing wall or facility (National Intramural-Recreational Sports Association Office, personal communication, 2010) and an estimated 3,000-plus climbing facilities worldwide (CBJ, 2017), concerning potential for problems exists. One such area of concern is the health of participants and staff, particularly in connection with sanitation practices on the climbing wall. Brauer et al. (2014) swabbed four climbing walls and found that enterobacteriaceae, which is commonly associated with fecal matter, was present on 100 % of the holds surveyed. Rabinowitz and Frauman (2015) examined sanitation practices, procedures and policies presently in use at 54 university climbing wall facilities in the United States, and found a lack of consistency amongst university climbing facilities concerning sanitation practices, procedures and policies.

Purpose

The primary purpose of this investigation was to assess the overall health concerns of route setters, a group completely ignored in the literature, in commercial climbing gyms, to determine how long commercial route setters are working in these areas, and to see what precautions, if any, are already being taken by route setters when working behind their walls.

Results

Forty-two full-time commercial route setters responded to an online researcher-created questionnaire. When asked an open-ended question about the number of hours a week spent behind the wall, the average response was 5.36 hours, with a minimum of zero to a maximum of 9 hours (with a 2.3 standard deviation). Route setters overall perceptions of sanitation conditions on a scale with 1 being “pristine and 10 being “filthy” behind the wall were at a 6.05 weighted average on overall cleanliness, 5.95 on air quality, dust levels at 7.32 and presence of mold at 2.83. Six subjects reported rats, mice and birds were the commonly found behind the walls.

A correlation analysis was conducted on ratings of overall cleanliness behind the wall compared with hours spent behind the wall, and a moderate negative relationship exists, $r = -.54$. The more time a route setter spent behind the wall, the lower he rated the overall cleanliness of the area. The poorer air quality ratings by route setters were also moderately positively correlated with time spent behind the wall, $r = -.45$; however, dust ($r = .18$) and mold ($r = -.12$) had low to no

relationships. Cleanliness and dust levels also had an expected positive correlation: the higher the filthiness, the higher the dust levels ($r = .65$). In addition, the higher levels of reported dust was highly correlated with poorer air quality levels ($r = .73$) as expected.

Route setters report their use of respiratory protection during major job activities behind the wall. The highest use of protection was reported during spinner fixing, when 30.77% of respondents use a dust mask and 5.13% use a respirator; however, a larger percentage (64.10%) use no protection. In addition, a quarter of the route setters reported using a dust mask, and 6.45% use a respirator during back plate replacement. Route setters were also asked in open-ended questions how long they felt comfortable working behind their climbing walls without any sort of respiratory protection. Answers indicated an average of 39 minutes; however, 13 of 39 respondents reported no time limits or concerns. Sixty-two percent of route setters supported the creation of a standardized set of safety procedures by the climbing industry for behind-the-wall activities, but only 5% support respiratory regulations.

Discussion

One objective of this study is to understand route setters' job responsibilities and the work they conduct behind their walls; it is the first study of its kind. The findings show that, on average, 12% of route setters' workweek is spent behind the wall. Fixing spinners and replacing back plates are the two tasks during which most route setters are voluntarily using respiratory protection, and often they bring their own dust masks. The picture reported by route setters runs the gamut from no health concerns to refusing to go behind their climbing walls for even a second without respiratory protection. Route setters are voluntarily using respiration protection and many are concerned for their health. While almost half of the businesses where route setters work are providing dust masks and roughly a quarter are providing respirators, managers at climbing facilities may want to increase access to these protections. Climbing wall managers may even want to consider following a set of best safety practices for tasks requiring over 10 minutes behind the walls by requiring dusk masks. The staff who spend the most time behind the walls also reported the most problems with poor sanitary and air quality conditions. Route setters with these conditions should record how much time they spend behind the wall and do a task analysis to determine when potential precautionary health measures should be implemented. Staff who spend a good deal of time behind the walls might also want to spend more time cleaning behind the walls. Over three quarters of route setters stated that they do not clean or vacuum behind their walls. This is compounded with the reports of dead animals, an overall rating by route setters of behind-the-wall areas as close to "filthy," and dust levels over a penny deep observed in some places.

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Social Norms for Mountain Bikes and Mountain Dogs in the Wildland-Urban Interface

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Summary

This research explored outdoor recreationists' indicators and thresholds for outdoor recreation activities and crowding conditions within the Foothill Trail system along the wildland-urban interface adjacent to the Salt Lake metropolitan area. Normative evaluations from outdoor recreationists help inform management and planning within this unique public resource.

Social Norms for Mountain Bikes and Mountain Dogs in the Wildland-Urban Interface

Introduction

Outdoor recreation participation is on the rise. Outdoor recreation is currently the fourth largest sector in the U.S. economy, generating \$887 billion in annual consumer spending (Outdoor Industry Association, 2017). The National Survey on Recreation and the Environment (NRSE) documented 4.4% growth, nationwide, in participation in one or more outdoor recreation activities between 2000 and 2007 (Cordell, 2008), and this growing population of outdoor recreationists is flocking to protected areas, including those managed by the National Parks Service (NPS) and the U.S.D.A. Forest Service (USFS [for a review see NPS, 2017; USFS, 2010]).

High levels of outdoor recreation participation are not confined to protected areas, and have also be recorded in the *wildland-urban interface* (Kil, Stein, Holland, & Anderson, 2012). Here, wildland-urban interface (WUI) refers to a spatial designation that encapsulates increasing residential development proximal to wildland vegetation (e.g., Radeloff, Hammer, Stewart, Fried, Holcomb, & McKeefry, 2005). Regular interaction with local outdoor recreation resources in the WUI often results in high use levels (Stein, 2005), as well as a variety of impacts to the local ecology (Radeloff et al., 2010) and the outdoor recreation experience (e.g., D'Antonio, Monz, Larson, & Rohman, 2016; Kellner, Carver, Gramza, Lewis, VandeWoude, & Crooks, 2017; Price, Brownlee, & Blacketer, 2018). Additionally, these high levels of use regularly bring outdoor recreationists with differing motivations, goals, and recreational pursuit in contact, which can lead to potential conflict (e.g., Manning, 2011, Ruddell & Hendricks, 1997), particularly in areas that receive less direct management from state and federal agencies.

The Salt Lake metropolitan area and its adjacent protected lands in the Uinta-Wasatch-Cache National Forest (UWCNF) are one prime example of the WUI and the challenges posed by high outdoor recreational use. Urban-proximate canyons in the Wasatch have some of the highest visitation in USFS lands (Wilkinson, 2004), and have been the site of decades of disagreement regarding recreational development (Zajchowski & Brownlee, 2018; Laitos & Reiss, 2004; Ruddell & Hendricks, 1997). Between the UWCNF and Salt Lake City, the foothills of the Wasatch also see high outdoor recreation use that has spurred county officials to undergo trail development to meet the needs of a growing outdoor recreation population of hikers, runners, dog-walkers, and mountain bikers (Itis, 2017).

The purpose of this research was to contribute to the trail development and management efforts of Salt Lake County Open Spaces by exploring outdoor recreationists' social norms for recreation activities and crowding conditions within existing the Foothill Trail system. This work was designed to inform Salt Lake City's Foothill Trail plan through the use of photo monitoring and visitor use surveys, in order to assist Salt Lake City managers in understanding levels of actual use and potentials for conflict based on normative evaluations.

Methodology

In line with common practice in federally managed public lands, this research used an indicators and threshold approach to understand social norms of outdoor recreationists in the Foothills Trail system. *Social norms* refer to stable patterns of acceptable behavior or shared beliefs within a group, and are one construct that has been particularly useful in assessing a wide variety of behaviors and preferences across a range of protected area settings (e.g., Anderson, Manning, Valliere, & Hallo, 2010; Manning, 20011; Price, Brownlee, Blacketer, 2018). More specifically, an *indicators and thresholds* based approach, using visitors' self-reported behaviors and preferences, is increasingly utilized across U. S. federal land management agencies to design and implement visitor use management plans (IVUCM, 2016). We utilized an indicators and thresholds approach to understand the social norms for crowding, as well as mountain biking and off-leash dog walking in the Foothills Trail system.

One a common indicator in social norm scholarship within outdoor recreation is the number of people at one time (PAOT) in a specific location, such as the number of PAOT present at Delicate Arch in Arches National Park, USA (e.g., Manning, 2011). Using this indicator, represented in photos that illustrate different quantities of PAOT (e.g., Manning & Freimund, 2004), researchers are able to query outdoor recreationists regarding the levels of acceptability they ascribe to different numbers of PAOT in order to help managers identify thresholds, such as the *minimal level of acceptability* among the group, or when it becomes, in their opinion, too crowded. The same indicator (PAOT) can also be used for other evaluative dimensions, which may include specific preferences (i.e., the level crowding that visitors believe warrants management action) or behaviors (i.e., when a level of crowding may compel an outdoor recreationist to visit another location).

In this study, we used the PAOT metric in two separate photosets to compare normative evaluations for PAOT with hikers and PAOT with hikers and mountain bikes in the Red Butte section of the Foothill trail system. In doing so, we were able to compare normative evaluations across activity types to reflect the potential future conditions of the trail system, which is expanding to provide mountain bike opportunities. Previous conflict has been reported in the UWCNF between hikers and bikers (e.g., Ruddell & Hendricks, 1997; USFS, 2001), and the expansion of the Foothills Trail system to allow for additional opportunities for mountain bike use warranted additional inquiry to assure investments in trail construction do not yield future conflict.

Results

Outdoor recreationists using the Foothills Trail system ($n = 176$) were intercepted at a popular scenic overlook (the Living Room) in the Red Butte area using stratified random probability sampling (Field, 2018) over 22 days from late June – September 2018. Sampling was stratified by time of day, day of week, and across months to capture a diversity of trail users visiting during high and low use conditions. Surveying yielded a 98 percent response rate.

Sample

Participating outdoor recreationists were generally younger ($M = 30$), well-educated (75 percent held a graduate or professional degree) Utah residents (79%) who reported a median household income of \$50,000 to \$74,999. Gender identity was evenly balanced between males (49%) and females (48%), and racial and ethnic background was distributed between individuals identifying as Caucasian (42%), Black or African American (15%), or Other (29%). The majority of the sample enjoyed hiking or walking at Red Butte (72.5%), while smaller segments also enjoyed walking or hiking with a dog (26%), trail running (21%), mountain biking (11.7%), or trail running with a dog (7.6% [preferences were not measured as mutually exclusive]). Outdoor recreationists generally had low past use history, with the largest segment of respondents listing only one visit in the past seven days (79%), past month (56%), or past year (34%). Additionally, 43 percent of recreationists had only one year of experience recreating on Red Butte segments of the Foothills Trail system.

Crowding perceptions

Outdoor recreationists generally supported mixed-use on trails (73%). 61 percent of respondents rated the conditions as “not crowded” or “barely crowded,” and 75 percent of respondents reported seeing 20 or fewer people throughout their *entire* visit. Indicators and thresholds for PAOT were assessed using photos depicting use level (i.e., 0, 2, 4... 10 PAOT) at the Living Room and on the Skyline Trail. Here, we report only a portion of findings from Skyline Trail photoset.

Skyline Trail. Average crowding perceptions at different PAOT use levels on the Skyline Trail are depicted in a social norm curve (Figure 1). Outdoor recreationists shared that most levels depicted were

acceptable, however, the sixth condition, which contained 10 PAOT, was deemed unacceptable ($\bar{x} = 3.55$, $PCI_2 = 0.604$). Level of agreement from respondents, measured using the PCI_2 statistic (e.g., Vaske, Beaman, Barreto, & Shelby, 2010) and represented visually in Figure 1 using the size of the corresponding bubble (e.g., Price, Blacketer, & Brownlee, 2018), decreased as the PAOT on the trail depicted increased (i.e., 0 PAOT = 0.229; 8 PAOT = 0.589).

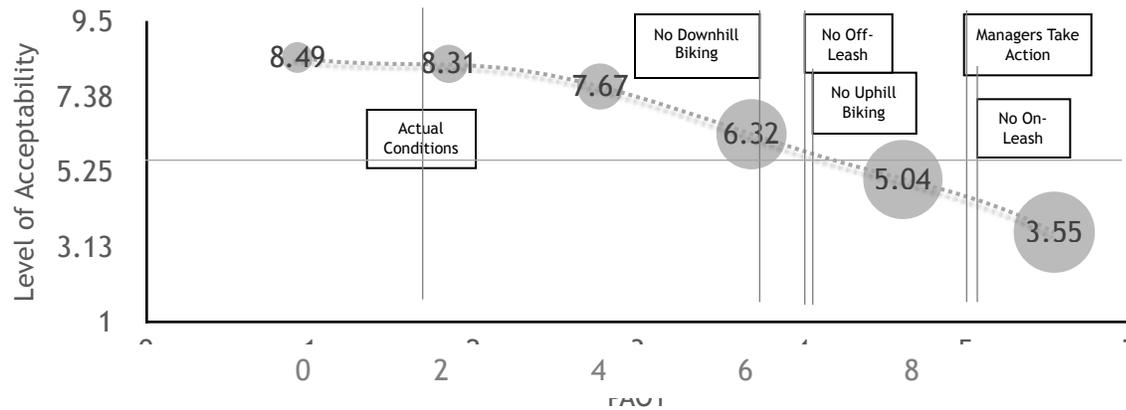


Figure 1. PAOT acceptability preferences on the Skyline Trail

Thresholds surrounding evaluative dimensions reported by outdoor recreationists were generally clustered at the higher use levels. Thresholds for downhill ($\bar{x} = 4.07$, $SD = 1.496$) and uphill mountain biking ($\bar{x} = 4.48$, $SD = 1.533$), as well as off-leash dog use ($\bar{x} = 4.42$, $SD = 1.765$), were reported following the PAOT condition of six individuals in view at one time. Once conditions passed the minimum level of acceptable PAOT ($n = 8$), outdoor recreationists reported managers should take action ($\bar{x} = 5.44$, $SD = 1.379$) and no on-leash dog walking should be allowed ($\bar{x} = 5.52$, $SD = 1.931$); however, 50% of individuals shared that on-leash dog walking should be allowed in all conditions.

Implications

The normative evaluations for crowding on the Skyline Trail segment of Red Butte within the Foothill Trail system represent a portion of the overall results from this survey effort. However, the results presented here help share users' perceptions of current crowding conditions and present valuable information for managers of outdoor recreation in Salt Lake County. First, it appears that outdoor recreationists are generally satisfied with the current crowding conditions, and amenable to the expansion of mixed-use trails proposed within in this segment of the Foothill Trail system. These findings are supported by previous assessment efforts of trail users on the Bonneville Shoreline Trail, an access trail to the Skyline Nature Trail, who reported not feeling crowded when using Foothill Trails (77% [Gouchenaur & Brownlee, 2014]). In sum, if current use levels are predictive of future use, outdoor recreationists will find a moderate level of increase in PAOT acceptable, across recreational activities. As Salt Lake County Open Space is planning to expand trail opportunities (Itis, 2017), increases in use may be dispersed across new trails, allowing for comparable and acceptable experiences for outdoor recreationists.

Next, while mountain biking and off-leash dog walking appeared acceptable in low use conditions, both were seen as unacceptable once use surpassed the fourth condition (PAOT = 6). In short, these specific activities attracted similar concern from the sample at this use level. Subsequently, analyses may help explain which outdoor recreationists object to which specific activities, or if there is a general

sentiment that these activities are incongruent and both need to be prohibited at high use levels. Given the high standard deviation and PCI₂ values, these subsequent analyses are particularly prudent.

Finally, the demographics presented in this study highlight the potential for specific trails within the Foothill Trail system to attract specific users. Past assessment efforts on the Bonneville Shoreline Trail have found groups with much more homogenous racial composition (i.e., 88% Caucasian [Gochenaur & Brownlee, 2014]) and a wider array of educational experiences (i.e., not predominately holding graduate or professional degrees). It is possible that due to the unique nature of the Living Room, a relatively short and moderate destination close to the University of Utah in the Wasatch Foothills, it attracts a slightly different composition of users. It is also possible the larger sample in Gochenaur and Brownlee's (2014) assessment is more representative of the population using the Skyline Trail, suggesting a potential limitation in our sampling. Regardless, the diversity in demographic representation in our sample begs the question of whether specific destinations within the trail system—even if only separated by a mile—might attract specific user groups, even when those user groups share similar recreational pursuit or crowding perceptions. These differences suggest a need for continued research into outdoor recreation use in protected areas along the wildland-urban interface in Salt Lake City and other protected areas.

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Trail Work for Training: A Case Study of Participatory Experience Tourism amongst 100-mile Runners

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Trail Work for Training: A Case Study of Participatory Experience Tourism amongst 100-mile Runners

Introduction

Within the sport of 100-mile endurance trail running there is a well-established tradition of requiring entrants to perform trail work as part of their official acceptance into the run. In an effort to help facilitate the fulfillment of this requirement, race directors often organize ‘trail work weekends and getaways’ and individuals will seek out these opportunities as a form of tourism that invokes what Liston-Heyes & Daley (2017) recently referred to as the “leisure-volunteer duality”. To the extent that race entrants are seeking enjoyment as well as wanting to help maintain the trail (s), while also fulfilling a requirement, the uniqueness of this form of tourism problematizes the traditional notions of tourism and voluntourism. While the benefits of both tourism and voluntourism are well documented, less is known concerning how a required task may impact the voluntourism experience and how practitioners can better manage it. For example, do runners perceive required trail work as enjoyable? What are the benefits surrounding such a requirement? When runners perform trail work on the race course, do they perceive a social-ecological responsibility? Do they glean any skills or knowledge as a result and how may they have opportunity to contribute further? Hence, the purpose of this study was to seek resolution to this challenge by investigating the experience of runners-as-trail workers through de Bruin & Jelinčić’s (2016) conceptual model of participatory experience tourism (PET).

Background/Literature Review

For more than a decade, numerous tourism scholars have discussed the challenges of examining traditional notions of tourism in light of the ‘creative turn’ (cf. Richards, 2011; Richards & Wilson, 2006) and the ‘social turn’ (cf. Goodwin & Francis, 2003; Pritchard, Morgan, & Ateljević, 2011). Concepts that have emerged from this literature seek to bring resolution to problematized notions of tourism while others have called for inclusion of the endemic experiential element centered on co-creation by both providers and tourists (Binkhorst & den Dekker, 2009). Similarly, many authors’ definition of voluntourism is contextually based and sensitized by the focus of the study (Wearing & McGehee, 2013). To the extent that various extant forms of tourism undergo analytic interpretation (Liston-Heyes & Daley, 2017; Pearce, 2005), there remains significant conceptual fragmentation across the literature.

As a result, de Bruin & Jelinčić (2016) recently posited an original theoretical conceptualization in an effort to coalesce many of these shortcomings. Participatory experience tourism (PET, Figure 1) includes an important value added (VA) component and has emerged as a multifaceted concept that seeks to appropriately convey “the growing tourism phenomena where the tourist experience is integrated with the acquisition of skills and knowledge through active participation and where this participation involves organic co-creation of a lived experience and VA, which can directly benefit other stakeholders rather than

solely the individual” (de Bruin & Jelinčić, 2016 p.64). However, there has been no empirical work examining the viability of the construct or its analytic utility.

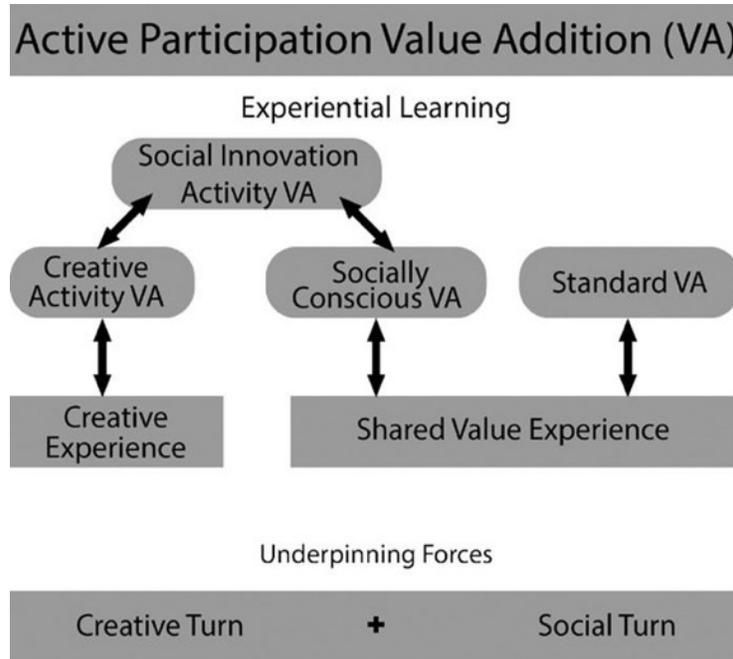


Figure 1. Participatory Experience Tourism (Adapted from de Bruin & Jelinčić, 2016)

Methods

This study adopts an emic posture and utilizes an embedded case study design (Yin, 2014) to explore the PET of eight race entrants during a trail work weekend in Virginia. The identified case was grounded in pragmatic considerations as the researcher in the study is also the race director and for the purpose therein chose to become a complete-member-researcher (Adler & Adler, 1994). Building on the previous work of Zealand’s (2007) ecologically active interviews (EAI) and Iared & Haydée Torres’ (2017) call for more ‘mobile methodologies’, collection of the empirical materials was multifaceted and included questionnaires, participant observations, and semi-structured interviews.

An online survey was developed using Qualtrics software and distributed before and after the trail work weekend. The ‘before’ survey contained 30 questions, of which 11 were semi-structured and the remaining sought to provide information on participant demographics, expectations, motivations and responses to the question ‘I am participating in this trail work because...’. The ‘after’ survey sought answers to the question ‘I participated in this trail work because...’, as well as semi-structured evaluations of the overall trail work weekend. While the continuous scale responses ranged from (1) strongly disagree to (5) strongly agree, the survey scale is not validated and hence, is not for statistical analysis, but a method to triangulate the sensemaking process and pattern matching discussed below.

As a complete-member-researcher, the author was an active participant during the entire trail work weekend, observing participants as trail workers and taking field notes grounded in events that took place during the activity of trail work as well as ecologically-active interviews (EAI). Zealand’s (2007) EAI approach is similar to both active interviewing (cf. Holstein & Gubrium, 1995) and reenactment

interviewing (Drew, 1993) in that it recognizes the interview as interpretive practice and collaborative meaning construction by both participant and researcher in both verbal and gestural conversation that is immersed in the motility of practical activities. For this case study, EAI was conducted on the trail where work was being conducted and allowed participants to describe responses to interview questions through speech as well as embodied action to show, or perform, their tacit understandings of their experience.

Analysis and Findings

Explication and analysis followed a dynamic combination of Yin’s (2014) pattern matching as well as ecological sensemaking (Weick, Sutcliffe and Obstfeld, 2005; Whiteman and Cooper, 2011). As a preferred analytical method to make sense of new information from different perspectives in complex situations (Woodside, 2011), ecological sensemaking is about “labeling and categorizing to stabilize the streaming of experience” (Weick, Sutcliffe and Obstfeld, 2005 p.411). Moreover, when dealing with case study analyses, one of the most rigorous analytic techniques is Yin’s (2014) pattern-matching logic. Through a combination of both techniques, the researcher coded and categorized interview data along with field notes and then the information was triangulated with data from the questionnaires. Once the sensemaking process was complete, pattern-matching logic was applied to the emergent patterns and applied to the PET conceptual model (Flybergg, 2010; Woodside, 2010). Quality and rigor were addressed by focusing on construct and internal validity through triangulation of data sources and external validity by focusing on analytic generalization (Yin, 2014) and propositional generalization (Stake, 1995).

Findings from the questionnaires provide a useful overview of study participants and is outlined in Table 1.

Table 1. Overview of Respondents to the Questionnaires

Sample	
Mean Age	42
Occupation Type	8 White-collar workers
Gender	3 females; 5 males
Education Level	one 2-yr degree; three 4-yr degrees; three professional degrees; one doctorate
Miles Travelled for Trail Work	three >40miles; five >100miles;
Volunteer Experience	in the last 5-yrs: three <6 times; four <11 times; one never
Trail Work Experience	seven <5 times; one >16 times
Previously completed trail work as a race requirement	4 yes; 4 no
Number of years running trails	six <8 yrs; two >17 yrs

Table 2 provides a comparison of before and after responses indicating whether the aggregate mean score on measures such as motivation and expectations was higher or lower following the trail work weekend. Participants indicated that 79% of the items met or exceeded their expectations during the trail work weekend. Three of the items with mean scores that were lower after the trail work weekend were related

to what Mustonen (2007) suggests as selfish reasons for voluntourism ('it helped me feel better about myself') and a lower score on another item ('I would not have done trail work otherwise') suggests a possible paradoxical increase in more socially conscious motivations. Four items remained unchanged in their mean scores when comparing before and after responses.

Table 2. Before and After Score Comparison

Item	Before	After	Mean	Mean	+/-
	"I am participating in this trail work because..."	"I participated in this trail work because..."			
Q1	I will meet new people. ^a	I met new people.	3.38	3.63	+
Q2	I wanted to be around like-minded people.	I got to be around like-minded people.	3.50	4.50	+
Q3	I wanted another reason to spend time outdoors.	It was another reason to spend time outdoors.	3.63	4.63	+
Q4	I will enjoy the time away.	I enjoyed the time away.	3.75	4.13	+
Q5	I might gain an appreciation of the area.	I gained an appreciation of the area.	4.13	3.75	-
Q6	I love the simplicity of it.	I loved the simplicity of it.	3.75	3.75	
Q7	It's an overall great weekend in the mountains.	It was an overall great weekend in the mountains.	3.88	4.13	+
Q8	I can tell others about the experience.	I can tell others about the experience.	3.63	3.38	-
Q9	It's a great escape from my everyday life.	It was a great escape from my everyday life.	4.13	3.88	-
Q10	It's a great way to become more knowledgeable about the trails.	It was a great way to become more knowledgeable about the trails.	3.75	4.25	+
Q11	I will learn valuable information about the race course.	I learned valuable information about the race course.	4.13	4.75	+
Q12	I would not be doing trail work otherwise.	I would not have done trail work otherwise.	4.00	3.00	-
Q13	I will learn valuable trail work skills.	I learned valuable trail work skills.	4.25	4.44	+
Q14	Everyone seems to be having a volunteering experience nowadays.	Like so many others, I now have a volunteering experience.	2.75	3.00	+
Q15	It will help me broaden my abilities and skillsets.	It helped me broaden my abilities and skillsets.	3.50	4.00	+
Q16	It will help me work better in a team.	It helped me learn to work better in a team.	3.38	2.25	-
Q17	I wanted to get a new perspective on things.	I gained a new perspective on things.	3.13	3.36	+
Q18	It might make me feel better about myself.	It helped make me feel better about myself.	3.25	2.75	-
Q19	The experience could be very rewarding.	The experience was rewarding.	3.63	3.93	+
Q20	It is a great way to 'give back'.	It is a great way to 'give back'.	4.13	4.25	+
Q21	Trails need maintenance in order to remain 'open'.	Trails need maintenance in order to remain 'open'.	4.13	4.25	+
Q22	Shared stewardship is important for sustainable trails.	Shared stewardship is important for sustainable trails.	4.00	4.38	+
Q23	I want to make a difference.	I wanted to make a difference.	3.75	3.75	
Q24	It is important to help others.	It is important to help others.	3.88	4.38	+
Q25	I want other runners to benefit.	I'm glad other runners can benefit from it.	3.88	4.38	+
Q26	I want other trail-users to benefit.	I'm glad other trail-users can benefit from it.	4.00	4.38	+
Q27	It's the 50th Anniversary of the National Trails System Act.	It's the 50th Anniversary of the National Trails System Act.	1.75	1.75	
Q28	It's the only option I could find to satisfy the race requirement.	It was the only option I could find to satisfy the race requirement.	2.21	2.21	
Q29	I would not be doing this if not for the entry requirement.	I would not have done any if not for the entry requirement.	3.13	3.93	+

Ecological sensemaking patterns emerged in the following manner: Perseity, Ecological Literacy, Wild Imbrication, and Integrated Isolates. Perseity is characterized as something that is simply *per se*; that is, the unusual or out-of-the-ordinary becoming usual or more ordinary than previously considered. In this sense, participants described how trail work, previously considered as an unusual, even foreign, activity was becoming more normal for them, so much so that it could be incorporated into their training: ‘In some ways I feel like I’m just doing yardwork as trailwork! I love being outdoors with likeminded people so I can see this becoming a natural extension of my race prep’ (R7) and race psychology: ‘Trail clearing turned into trail intel for my game day strategy’ (R2).

Ecological Literacy is characterized by the ecologically-social component where the entry requirement of trail work serves as an enlightening experience and the impetus for ‘giving back’. After experiencing some trail work, many participants expressed: ‘Now that I’m out here it makes total sense that if we don’t keep trails clear, who will?’ (R7), ‘More races need to provide a chance to give back...’ (R4), and ‘If not for the requirement, I wouldn’t have realized my part in how both the trails and others can benefit from all this work’ (R1).

Wild Imbrication is regarded as a creative pattern so that the mundane task of trail work becomes an almost artful endeavor of contouring the trail through maintenance and reflects an endless, embodied dialog. The dialog appears to continue long after the trail work itself is completed as the newly fashioned trail contours create a kind of ongoing dialog with subsequent trail users. In reference to the use of future course markings for the upcoming race, one participant remarked: ‘Hey, some might have to duck under but I’m leaving this [branch] for a streamer!’ (R2) and another commented: ‘Kinda funny when I think that since we had to leave that big tree...means everyone will now do the same thing...hmm’ (R5).

Integrated Isolates suggests an increasing cognizance of the need to be aware of areas that need trail maintenance and communicate the needs as a shared value and resource: ‘We had to leave a couple blowdowns but already put the waypoints on my Strava...’ (R8), ‘I brought this [gas trimmer] ‘cause I knew it was going to be super overgrown up there; --- posted pics on FB’ (R3), and ‘I’ll send you before & after pics to prove we did a good job!’ (R6).

These emergent ecological sensemaking patterns were identified as empirically corroborating the conceptual model of PET through Yin’s (2004) analytic generalization of pattern matching in the following manner: Perseity (Standard VA), Ecological Literacy (Socially Conscious VA), Wild Imbrication (Creative Activity VA), and Integrated Isolates (Social Innovation Activity VA). The four sensemaking patterns as applied to the PET model are shown in Figure 2.

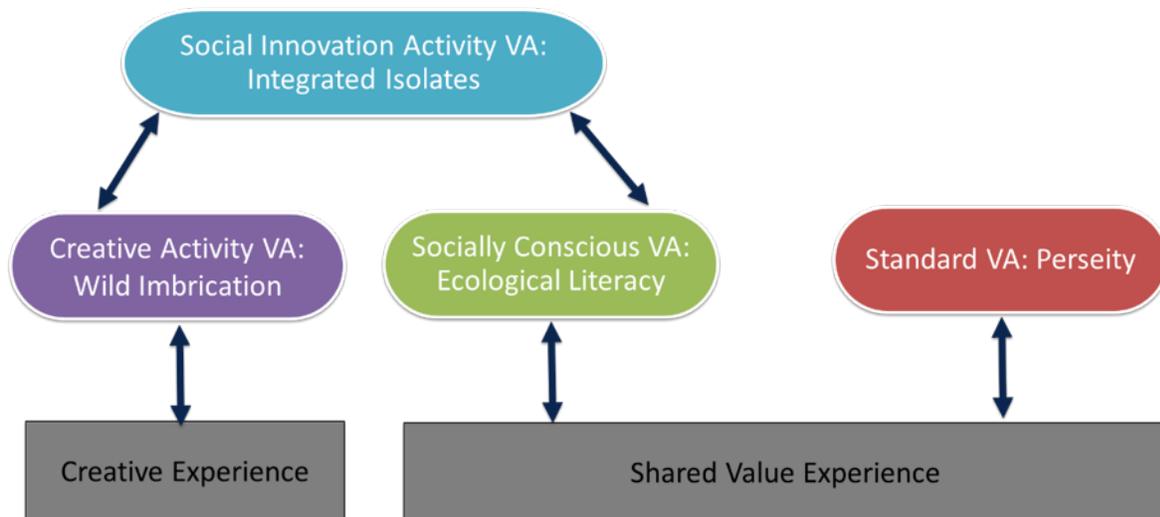


Figure 2. Analytic Generalization of the Case to the PET Model

Discussion – This research provides an original application of a newly developed conceptual model in an effort to better understand the ‘leisure-volunteer duality’ and associated theoretical constructs. Efficacious pattern matching of empirical materials in this case served to corroborate the theoretical constructs in the PET model through analytic generalization and hence, frameworks such as this can be considered to “be at a conceptual level higher” (Yin, 2014 p.41). The following practical implications are offered for event managers, outdoor recreation programmers, environmental educators and future researchers. To the extent that event managers rely heavily on volunteers and can influence expectations and perceptions, managers should engage volunteers more by classifying and developing sensemaking mechanisms through active participation in labor productivity that includes co-creative opportunities. Recreation Programmers should consider designing ‘Value –added’ (VA) strategies around creative and shared value experiences for greater congruence of volunteer expectations and perceptions in acquiring knowledge and skills. Environmental educators are encouraged to explore opportunities for increasing sensorial awareness grounded in the intersubjectivity of embodied experiences that seek to dehisce social-ecological phenomena. Future research should move beyond pattern matching and analytic generalization to logic models and grounded theory.

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Mountain Bikes perceptions of Electric Mountain Bikes

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A pilot study of the perceptions of Electric Mountain bikes by mountain bikers at one mountain park

Electric mountain bikes are becoming more common and are often showing up on mountain parks and trails. Sales growths of eBikes which include eMTBs are increasing, and if growth in China 200 million ebikes on the Chinese roads, 40% of bikes sold in Norway and in Germany traditional bikes were down 10%, but ebike sales were up 13%. In the US an average of 150,000 ebikes are sold every year projections are to double this year alone (Allianz, 2017).

As expected with this growth of use legislators have adopted by the U.S. Congress HR 727 legislation . However, no laws apply to using mountain bike trails unless the land managers have adopted a no motorized vehicle policy. The problem with these policies maybe that may not include, or rather exclude eMTBs. Before land managers begin to create limitations and regulations excluding these users the authors decided to do a grassroots examination of the MTB users at a local MTB park. The purpose of this investigation was to examine perceptions of electric mountain bikes (eMTB) by mountain bike users from one mountain bike park. This is a new research line as to date the authors could not find any study examining perceptions of MTB riders on eMTB.

Methods

A local MTB park members of a facebook page were solicited for participation in a 10 minute questionnaire. Survey was created and content validity examinations were conducted with experience professionals in the field. The traditional survey research blocks to prevent a person from filling out multiple surveys was implemented, such as IP addresses blocks, and inclusion statements. Survey was posted to the facebook page for

Results

The total number of participants was 64 complete and usable responses, four removed due to less than 20% completed. In an effort to determine if anyone was using an ebike, or even had a wish to own one. Only six individuals had an ebike, and only six (8.7%) had an interest in owning one. In an effort to determine if people had tried ebikes 55% (n=38) had ridden an ebike. Level of rider was also included as the local park is mostly for intermediate to expert level riding. Of the 61 riders that responded to a scale of 0 very beginner MTB to 100 Pro the average was 72.26 (SD = 2.5, M = 70). When asked how many days they ride at this park they stated on average 14.7 days, with another local park receiving higher attendance at 15.4 days, and all riders averaging 107.9 (SD = 11.32, M = 86.5) days mountain bike riding per year. Subjects demographic information averaged 39.86 (7 self-identified as female, 1 non-conforming, 49 males).

Overall 25% support inclusion of ebikes on established MBTs. In the National Forest eMTB riding is supported 32%. Over 60% were very concerned about the environmental impact eMTBs will have on their trails. As trails are built differently and trail materials/make-up are different 27% of respondents who had used the local trail in the last year support the inclusion of eMTBs. When asked specific issue related questions respondents overall 54% reject eMTBs for social impacts, 42% for trail impacts, 25% support eMTBs use due to fitness needs of riders, only 9% see no difference between eMTBs and MTBs. Rules our sample desired were 61% wanted speed limits, 65% wanted right ways mtb, 65% contingent on trail conditions eMTBs, 22% wanted special times for eBikes, 24% supported special days of the week and 60% had user conflict concerns. Conditions the respondents reported should be considered for eMTBs inclusion 52% was supported if a person was disabled, 37% supported trail type was appropriate, 30% weather conditional, and 28% saw age of user. A correlation analysis was conducted on number of days ridden in the year, self-reported skill level and variables of overall

supportive inclusion, environmental impact, and speed concerns. Very low to no correlation exist, and worthy of reporting.

Discussion

This is only one small group, and does not represent all mountain bike users. The conditions and design of the local park may influence responses. As no study exists on Mountain Bikers (MTB) and their perceptions of eMTBs to date a pilot investigation is need to allow for a larger national study potentially by the International Mountain Bike Association (IMBA) is warranted, and land managers need the view of present users to determine future action. The U.S. Forest Service and the Bureau of Land Management to state and local agencies, are uncertain about the best strategies for classifying and overseeing this new form of recreation. The participants in this study overall only 25% support inclusion of ebikes on established MBTs. These participants are concerned about environmental impacts, trail design need seem different, worried about social impacts, speed limits, right ways, wanted special times for eMTBs, and overall user conflict concerns.

Gender specific programs: Better understanding the female mountain biking experience

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Abstract Summary:

The purpose of this study is to address the gap in current literature regarding women specific outdoor recreation through examining female participation in recreational mountain biking. Previous literature discusses the barriers to and benefits from participation in women-specific outdoor recreation programs. The proposed study seeks to extend this literature to the outdoor pursuit of mountain biking. Through distribution of online surveys, researchers have identified and confirmed trends in the female mountain biking experience, as well as areas of interest for further examination.

Introduction

Participating in outdoor recreation has many benefits including health, wellness, social, and emotional growth (Avery, 2015; Lloyd & Little, 2010; Pawelko, 2003). Benefits are not limited to gender, however realization of these benefits for women may be limited. According to the Outdoor Foundation (2017), participation trends suggest female participation continuously declines after the age of 20 (Outdoor Foundation 2017 Report).

The outdoors has traditionally been painted as a physically fit, heterosexual, white male dominated domain (Little, 2002). This misconception has contributed to societal and individual barriers to women participating in outdoor recreation (Little, 2002). These barriers can stem from simply a lack of opportunity for women to participate, to the more complex issues of gender-role expectations and self doubt. In a study of gender socialization in wilderness recreation advertising, McNeil, Harris, and Fondren (2012), concluded that “not only are feminine defined traits not seen as conducive to participation in outdoor recreation and sports, but also gender socialization affects women’s perception of the outdoors as unsafe for them” (p. 42). This perpetual misrepresentation and misinformation about female characteristics and traits as well as that of the outdoors, continuously limits females from developing relations through outdoor recreation and education (McNeil et. al 2012).

Despite lack of participation, the women that do participate in outdoor recreation benefit from their experiences. This is especially apparent when looking at gender specific outdoor recreation programs. The benefits participants of women specific outdoor programming experience often include “feelings of safety and comfort, increased connection to others, and freedom from stereotypes” (Whittington, 2011, p. 1). Wilson and Roberts (2016), found that by distancing women from modern media and the pressures of everyday society, and placing them in groups with only female participants, women have broken gender stereotypes and developed an “increased sense of freedom and equality, strength and self-sufficiency, group collaboration,

physical competence, and appreciation of their bodies' abilities in an adventure activity" (p. 151). Lloyd and Little (2010) identified structural components of women only programming that leads to positive participation outcomes which include the following: female leaders and instructors, physical, mental, and emotional challenge, choice, and the feelings of autonomy, competence, and relatedness (Lloyd & Little, 2010). However, one of their findings was that participants expressed greater susceptibility to defer and avoid challenges if male participants had been present. Similarly, Pawelko (2005) found that the women-specific space allowed women to feel more enjoyment from the activities they were participating in because they were truly doing it for the purpose of self growth and connection.

While some research has been done on mountain biking, little research has been done regarding the inter and intrapersonal outcomes associated with recreational mountain biking. Levy (2002) studied the competitive female mountain biking experience and found comparable outcomes to those women who participate in women-specific outdoor recreation programs including: self-fulfillment, increased perceived competence, social support and camaraderie, increased health and fitness, a sense of enjoyment from the experience, and increased focus and self control. Therefore, the purpose of this study is to address the gap in literature regarding the recreational experience of female mountain bikers and their perceptions of participation in this pursuit.

Methods

During the summer of 2018, a snowball sample of mountain bikers were invited to participate in an online survey regarding their mountain biking experience, preferences, and motivations. Researchers identified key informants, individuals that were known to be knowledgeable of mountain biking and/ or mountain biking communities, through professional 3 networks and professional associations including the International Mountain Biking Association (IMBA) and the Association of Outdoor Recreation and Education (AORE). These key informants were asked to help distribute the online survey link through email and social media. The all-female sample (n = 73) presented here is comprised from the overall study population (N= 232).

All participants completed the online survey that included questions pertaining to rider demographic information, riding experience and preferences, motivations, and perceived outcomes associated with participation. The survey was designed with open ended questions intended to better understand the riders experience, values, and perceived challenges to participation. Additionally, the survey was informed by motivation theories such as Ryan and Deci's (2000) Self-Determination Theory.

Data was analyzed using SPSS with additional open ended qualitative response data independently reviewed by researchers for trends. Following the independent review, researchers compared trends to create response categories. Total responses for each category were tabulated and presented in the following section.

Results

The all-female sample comprised a total of 73 respondents that indicated female when completing the online survey. This sample (n=73) represents 29% of the overall study population.

The mean age of these respondents was 37 (SD 10.6), with 93% of respondents identifying as White (1.4% Black, 1.4% Asian). The majority of respondents indicated the Midwest (49.3%) was their primary riding region, with the second most indicating the Northeast (21.9%). Only 26% of the sample indicated they were a member of IMBA. Figures 1 and 2 provide respondents experience in years riding and self-reported riding ability. Eight-five percent of the sample participated in a group ride over the last year. Nearly 1/3 of respondents (34.3%) participated in a training or workshop (n=23), Figure 3 provides

respondent motivations for attending the training. The vast majority of respondents (91.3%) described the workshop as a positive experience. The top three categories generated from the open-ended qualitative responses indicated the instructors (16 responses), the course structure (9), and both community building (4) and all female participants (4) as perceived contributors to the positive training experience (Figure 4).

Further analysis of the qualitative responses produced additional findings concerning motivations and challenges associated with riding in general (beyond trainings, workshops or clinics). Figure 5 provides respondents top reasons for participating in mountain biking. Finally, respondents described challenges to riding, Figure 6 provides the top categories generated from analysis.

Discussion

This study sought to better understand the female mounting bike riding experience and to expand the literature on female outdoor recreation. Overall, the study findings are consistent with existing literature concerning barriers to participation and women specific programming preferences (Little, 2002; Lloyd and Little, 2010). Two additional findings warrant further discussion. First, approximately 1/3 of the sample indicated they had participated in a training, workshop or clinic. However, of all female respondents, the fourth most common barrier to participation was a sense of lack of competence or skill. Further research should explore this discrepancy and reasons why more female riders are not participating in trainings, workshops or clinics. Second, the motives provided for riding and attending a training, clinic or workshop were relatively consistent (e.g., exercise, fun, community) however, nature was absent in both motives for attending a training, workshop, or clinic as well as in the components of a positive training.

Furthermore, nature's absence in these areas, as the second most common reason for riding, suggests program providers and future research should explore the role of nature in contributing to the learning environment and potentially increasing the appeal of trainings to female riders.

Examining Perceived Confidence and Proficiency of College Students Participating in an Outdoor Leadership Development Course: An Exploratory Study

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This exploratory study examined perceived confidence and proficiency of college students participating in an outdoor leadership development course. Given the increasing attention in higher education about documenting outcomes linked to curriculum as well as extracurricular offerings (e.g., college outdoor programs), this study was an attempt to better understand how a semester long academic course may influence college student's perceptions of their confidence and proficiency tied to common outdoor leadership practices. Furthermore, it was expected the findings from this study may also provide instructors (e.g., faculty, practitioners) with a survey tool to aid them in comparing their assessment of outdoor leader competencies to student/staff/participant perceptions.

Methods: A 10-question electronic survey was administered to senior-level students in a semester long outdoor leadership course at a mid-size southern United States university near the beginning of the fall 2017 semester. Shortly after completing a culminating multi-day field experience near the end of the course the survey was administered again. The survey primarily focused on one multi-item question assessing perceived confidence and proficiency. Other questions were tied to demographic and experience use histories. Drawing from the Wilderness Education Association's (WEA) historical 18-point curriculum developed in its early years (WEA, 2018), 34 items using a 5-point Likert scale were created to measure perceived confidence and proficiency. Two items were developed for 17 of the points in the curriculum (Note: "Specialized Travel and Adventure Activities" was not included). The Likert scale for measuring confidence ranged from 1 = "Not at all confident" to 5 = "Extremely confident." For proficiency the Likert scale ranged from 1 = "Not at all proficient/skilled" to 5 = "Extremely proficient/skilled." Before the survey was administered to students in the leadership course, the instrument was tested for reliability purposes using a convenience sample of student members of the Association of Outdoor Recreation and Education (AORE) each invited to participate electronically. The reliability analysis for the 34 "perceived confidence" items revealed a Cronbach alpha value of .968 and for "perceived proficiency" a Cronbach value of .958. **Note:** Additional analysis found that none of the items positively affected the overall Cronbach value if deleted. As such, all 34 items were kept for both perceived confidence and proficiency.

Results: Nineteen students completed the early semester administration of the survey with 10 completing the end of course administration. Using paired sample t-tests comparing early semester perceived confidence and proficiency to end of course perceived confidence and proficiency, determined a number of statistically significant ($p < .10$) positive mean differences. Eleven differences were found among the items for perceived proficiency with the majority of them associated with what might be termed "hard skills", 10 mean differences were found for perceived confidence with most also associated with "hard skills" (see Table 1). Overall mean scores across all items ranged from 2.7 to 4.5 for perceived proficiency scores pre/post course, with mean scores ranging slightly less from 2.8 to 4.3 for confidence. Many items revealed variances above 1.0, with mean difference patterns between pre/post confidence versus pre/post perceived proficiency fairly similar. In other words, a participant's perceived confidence was similar to their perceived proficiency at pre-course across most items, with post-course means moving together in similar ways, whether statistically significant or not. Four items (one soft skill, three hard skill) revealed a decrease in mean scores from pre to post across confidence and proficiency with one statistically significant – maintaining a sanitary group setting.

Conclusions and Implications: In general, participants in this study saw themselves as fairly confident and proficient across a range of skills. Fourteen of the 34 items examined revealed statistically significant differences (all positive direction except one) suggesting that the treatment (participating in the course) may have positively influenced both confidence and proficiency. With the exception of four items, the

remaining items revealed small increases across perceived confidence/proficiency. Additional analysis may include examining how experience plays a role in perceptions, particularly since most of our sample was nearing completion of their degrees with some having formal work experience in the outdoors. Although given the small sample size this may be impractical. In general, the small sample size is problematic, and it is our intention to build upon this exploratory effort by collaborating with others interested in this type of work. While other factors (e.g., age, gender) may offer additional insight into the findings, outdoor program administrators, academics, and other related field practitioners, should consider looking at how examining perceived confidence and proficiency may have implications for other outcomes (e.g., college student retention and success, perceived self-efficacy, outdoor program staff development, and general field-based programmatic success).

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College students' definition of adventure: Three years of student generated videos

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This study problematizes the definition of adventure by investigating the emergent definitions of college students engaging in microadventures. Unstructured and structured observation were used to analyze student produced videos from a general education adventure literature course (n=95). The results confirm Varley's (2006) claim that "adventure is an infinitely variable, malleable construct" (p.174). Findings have implications for outdoor professional working with novice participants and evidence of a continued difference in the performance of gender in adventure.

What is an adventure? Authors have suggested that adventure is a balance between risk and competence (Priest, 1992) with different levels of commitment to the experience (Ewert & Hollenhorst, 1989). Varley (2006) concluded that adventures fall somewhere on a continuum from shallow experiences that include expert leadership, comfort, and low levels of actual risk to deeper adventures that are inherently risky and can therefore not be commodified. However, Varley also states "the vagaries of personality, experience and situation mean that *adventure* is an infinitely variable, malleable construct" (2006, p. 174). This study examines how current college students define adventure for themselves.

The data used in this study come from an assignment in an adventure literature course at an urban university. The course is a general education (GE) course and attracts a range of majors from across campus, including many international students. The course requires students to read classic adventure books (e.g., Rawicz's (1956) *The Long Walk*, Alexander's (1998) *Endurance*) as well as more modern literature (e.g., Strayed's (2012) *Wild*, Glickman's (2012) *Fearless*). Moreover, they engage in primary adventure experiences with their classmates (e.g., backpacking, sea kayaking, rock climbing, challenge course). The goal is for students to not only read about adventure, but to connect what they read to personal adventure experiences and develop a philosophy for the role they want adventure to have in their own lives.

The capstone of the course is an independent adventure based on Alastair Humphreys' (2014) microadventures concept. Humphreys describes microadventures as "short, simple, local, cheap – yet still fun, exciting, challenging, refreshing and rewarding" (Humphreys, 2018). The students in the adventure literature course were required to go on an outdoor adventure that lasted from 3 to 48 hours with at least one companion. The guidelines requested that they start and end the adventure at the house of one

member of their group and could only use public or human powered transportation. The assignment description did not specify what needed to be included in the adventure as long as it was relatively safe, legal, took them out of their “mundane or common reality”, and met their own personal definition of adventure.

Methods

The majority (n=95, 81%) of the videos from five semesters were available for review. The gender balance of students in the class was almost identical to the university (62% female in the class versus 61% in the university). Moreover, the availability of videos did not differ greatly by gender (60% of the available videos were from female students). The racial and ethnic profile of the course was very similar for the course compared to the university (Latino 32% vs. 33%; Asian 29% vs. 30%).

A total of eight hours and seven minutes of student videos were analyzed for this study. The video duration ranged between 2:00 and 9:07 minutes (median 5:03 minutes). The authors used both unstructured and structured observation to analyze the data. During the initial analysis, the authors described the content of the video, developed initial memos about the emergent themes, and captured quotes from audio statements or text. Second, codes were created based both on definitions of adventure from previous research as well as the characteristics of adventure that emerged from the videos during the initial analysis. Third, the codes were applied in a content analysis (Prior, 2014).

Results

In most (76%) of the videos, the participants were primarily walking or hiking. Biking was the second most frequently occurring activity (19% of videos). Other activities (14% of videos) included skating, camping, rock climbing, running, paintballing, swimming, and slacklining. Female students' videos more frequently included primarily walking or hiking (81% vs. 68%), while male students' videos were more likely to include biking (24% vs. 16%) or an “other” activity (21% vs. 9%).

Although it was not a requirement, some students provided their personal definition of adventure. These included elements of exploration, risk, learning, and fun. An example of a list definition was, "Adventure means going out of (my) comfort zone, exploring new areas, and pushing myself, getting back to a starting point or an end point, and to learn something about myself or my friends." There were also more philosophical definitions, "What adventure is, is to be able to take life to the fullest, and being able to grow old and not regret the things you wish you had done when you were younger."

Many of the students compared their own microadventure to adventure texts they read as part of the course. The comparisons of their experiences to the grand adventures often led them to perceive their own experiences as minimal; however, they universally concluded their own experience was still subjectively an adventure. "It's a challenge. It's not the hardest thing, it's not as hard as what Cheryl (Strayed) had to go through, but it's not easy so I really feel what she had to go through."

There were three common elements of adventure in the videos; challenge, novelty, and positive outcomes. The challenging parts of the videos included darkness (45% of videos), physical challenges (35% of videos), and social risks. "Even though there were challenges like geese trying to attack me and <student> dropping her phone in the lake, and being afraid of the dark, we overcame these challenges and ended up having a really cool and fun experience." Almost half (43%) of the students described their microadventure as a novel or rare experience. This novelty was contrasted with what many described as a limited routine, "My friends and I are small town girls, and I myself still do not go out that often around the city." Some students saw going into nature as a novel experience, "To me this was an adventure, because I don't really spend time to go out and walk in nature and explore." In contrast, a student

defended her choice to stay in the city by stating, “I believe that the categories of wilderness and civilization are colonial concepts. The traditional idea of an adventure from a colonial worldview is for someone civilized getting submerged in and then conquering nature, the wilderness.” Positive outcomes captured by the videos included a sense of self-efficacy, an opportunity for reflection, and satisfaction.

Beyond the previous elements of adventure, students included shots down from cliffs, close-ups of warning signs, interactions with decrepit military bunkers, and music to create a sense of adventure in their videos. Videos produced by male students more often included these aspects of *adventure* in their videos.

Discussion

Many of the elements of adventure discussed by previous researchers persist in this group of college students’ stated and emergent definitions of adventure; challenge, novelty, and positive outcomes. Although the data is limited by the fact that the videos were produced for a class assignment and were required to occur relatively near their residence, the results of this study suggest that these students hold both an objective and subjective definition of adventure. The subjective definition is one that they apply to themselves and is fairly limited compared to the objective definition they use to define adventure in books and other media.

The manifestation of adventure continues to be a gendered experience. Women tended to participate more in hiking or walking, an activity that requires a lower levels of skills and often commitment compared to biking or other activities. Men and women also framed their experiences in different ways. Women were more likely to admit that they were lost and men were more likely to include *adventurous* images of precipitous drops, warning signs, climbing through bunkers, and adrenaline-soaked background music.

The results of this study have a number of implications. Outdoor professionals that facilitate adventure experiences should be aware that their subjective view of a desirable adventure may diverge from their participants’ and this has implications for providing the appropriate depth of adventure (Sharma, 2006; Varley, 2006) and supporting participants subjective views of adventure (Holyfield, 1999). Understanding that the social construct of adventure continues to be gendered can help outdoor professionals understand differences in the perception and performance of gender in the outdoors (Dingle & Kiewa, 2006).

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Hosting Triathlons on a College Campus: Perceived Health Outcomes, Values, and Satisfaction

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Introduction

Multi-sport, endurance racing, and obstacle racing (e.g., Spartan Run) have gained significant recent traction (Case, & Hill, & Dey, 2009; Hill, Ridinger, Shapiro & Gomez, 2012). In fact, youth participation in triathlon is at an all-time high (USA Triathlon, 2017). On any given weekend, triathlon events are being held in communities throughout the United States. Hundreds of triathlons are held at local, regional and national levels. The sport of triathlon has grown to the point that international competitions are held worldwide and every four years world-class triathletes compete for medals at the Olympic Games. In 2014, women's triathlon became an NCAA sport and in December of 2015 the \$2.6 million USA Triathlon Foundation Women's Triathlon Emerging Sport Grant became a reality (USA Triathlon, 2018). More recently, triathlons are being held on college campuses and using such resources as outdoor adventure programs (Hill, Morgan, & Hopper, 2018).

Little research exists of the perceived health benefits or value of multi-sport, but some studies have explored general health value of the sport (e.g., Vleck, Millet, & Alves, 2014). Research on athletes who compete in mainstream and traditional team sports such as baseball, basketball and football is prevalent (Coakley, 2007, Jowett & Lavallee, 2007; McGinnis, 2005; Weinberg & Gould, 2007; Wilmore, Costill, & Kenney, 2007). These studies have examined a number of research areas including psychological, sociological, socio-economic and physiological variables associated with participation. However, the individual sport of triathlon still has limited research on health benefits or motivations.

Regardless of their tremendous growth (USA Triathlon, 2014), emerging lifestyle sports such as triathlons have received very little research attention. Case and Branch (2001) examined selected demographic and psychographic variables associated with participants competing in an "off-road" triathlon event. Others have explored the career path of triathletes (Case, Hill & Dey, 2009; Vleck et al., 2014). Keeping fit, living an active lifestyle and maintaining a high commitment to the sport of triathlon were identified as reasons why they participated (Case & Branch). The limited amount of research further supported the need to look at why individuals begin the sport of triathlon. Measures exist that are appropriate to determine these outcomes. The Perceived Health Outcomes of Recreation Scale (PHORS) is theoretically grounded in Driver's (1998) benefits of leisure. A benefit of leisure, as defined by Driver (2008), is an outcome that causes (a) a change resulting in a more desirable condition than the preexisting state (IMPROV), (b) the continuance of a desired condition in order to prevent an undesired condition from occurring (PREV), or (c) the realization of a satisfying experience with regards to recreation (PSYC). The Means-end of Recreation Scale (MERS) reflected Gutman's (1982) means-end theory of (a) attributes, (b) consequences, and (c) values. The PHORS and MERS have been used in previous research on National Scenic Trails, rock climbing, and mountain biking areas across the country (e.g., Gómez, Hill, Zhu, & Freidt, 2016). Therefore, the purpose of this study was to determine perceived health outcomes, values, and participant satisfaction of a college campus-based triathlon.

Methods

The current study examined the health outcomes, values, and satisfaction among participants in a college campus triathlon. In the spring of 2018, 98 community and campus members took part in an entry-level triathlon on a mid-Atlantic college campus. This was the sixth year for this event; it is a "super sprint" triathlon including a 400-yard pool swim, a six mile bike around the campus, and a 5k run through campus. Participants completed the 26-item Perceived Health Outcomes of Recreation Scale (PHORS)

and Means-end of Recreation Scale (MERS) online via Qualtrics. The link was sent via the triathlon participants (convenience sample). An ANOVA was used to determine differences (i.e., the six identified outcomes) among participants.

Results

Of the 98 participants, 55 completed the survey (57% response rate). This resulted in a 47% response rate (N=49). The sample was 57% male; 58% Married; 90% Caucasian; 33% had served Active Duty Military; and 80% employed full-time. Other demographics revealed 27% traveled from outside the Hampton Roads area; 87% voted in the last election; 10% participated as a family; and 71% had at least a 4-year degree. Eighty-four percent participants indicated this event contributed to a healthy lifestyle. Eighty-four percent said they would recommend this event to a friend and 78% indicated they would do this event again. Cronbach's Alpha for the three dimensions of the PHORS range from .88-.96 and the MERS, .77-.93, and supported previously identified factor structure. The ANOVA revealed no significant difference between the six outcomes (PREV, IMPROV, PSYC, ATT, CON, and VAL) attained and: gender, marital status, or ethnicity.

Discussion

Other similar studies have explored motivations of runners, but very few studies have examined the health benefits and value of participating in triathlon (Hill et al., 2012). The lack of significant difference is certainly to be viewed cautiously due to the small sample size. However, results indicate a variety of individuals benefited equally from participating in a triathlon. This offers a unique and inclusive form of outdoor recreation for all levels and abilities. Additionally, using the Perceived Health Outcomes of Recreation Scale supported previous research on its psychometric properties (Hill, Wygant, Smith, & Gómez, 2017). It also added a new user type (triathletes) for the PHORS and MERS showing its application to many different outdoor settings in which a health benefit is perceived (Gómez & Hill, 2016; Gómez et al., 2016). Much of the current recreation literature supports users want short and family oriented events. The biggest growth continues to be at the shorter sprint distances family-friendly events, which have surged from 818 in 2004 to 1,507 in 2010 (USA Triathlon, 2018). In 2012, USA Triathlon launched the Splash & Dash Youth Aquathlon Series to introduce youth aged 7-15 to multisport. The Splash and Dash annually serves nearly 3,000 youth around the U.S and currently has 37,908 youth members (USA Triathlon). Many participants from the 2017 pilot study indicated their motivation for participation was that included their entire family. As multisport continue to grow and our society embraces health and wellness as a lifestyle, triathlon has the ability to create significant positive benefits for our youth and adults.

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**Evaluation of food intake during outdoor education programs
and its relationships with energy expenditure and conditions of participants**

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Introduction

Nutrition during outdoor programs in Japan has not been explored sufficiently owing to the short duration of many programs (a few days up to a week in most programs), leading to the assumption that nutrition is not affected. However, for the purpose of ensuring safer, more enjoyable, and more educational programs, conditioning individuals with desirable nutrition is critical no matter the length of programs. Several studies that examined related topics have shown only descriptive data of food intakes and barely discussed energy expenditure or specific activities, therefore, their implications are limited (e.g., Higashiyama et al., 2009; Bunya

Day	Day 1	Day 2	Day 3	Day 4
Activity	Icebreaking	Initiative games	Mountain hiking	Reflection
Distance			5km	
Stay	Group tent	Group tent	Group tent	
Calorie intake	799*	1986	3066	421
Average METs	1.49	1.50	1.80	1.14
EE (kcal) male	2965 ± 431	2998 ± 422	3584 ± 500	2285 ± 322
EE (kcal) female	2394 ± 454	2430 ± 449	2905 ± 540	1841 ± 330
* only dinner				

Day	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
Activity	Mountain peak hunts		Hiking	Sea kayaking		Overnight hiking	
Distance	10 km	14 km	40 km	9 km	kayak 13 km · hike 22 km	28 km	40 km
Stay	Solo shelter	Group tent	Group tent	Group tent	Group tent	No sleep	
Calorie intake	745 kcal*	2947 kcal	2875 kcal	2262 kcal	2832 kcal	2433 kcal	
Average METs	2.01	2.04	2.89	1.18	2.07	3.51	1.03
EE (kcal) male	4924 ± 538	4824 ± 538	6095 ± 679	2374 ± 276	4247 ± 461	7395 ± 781	2086 ± 230
EE (kcal) female	3922 ± 404	3840 ± 419	4625 ± 565	1785 ± 230	3181 ± 399	5574 ± 676	1157 ± 199
* only dinner							

Entry-Level Competencies for Natural Resource Based Outdoor Recreation Management Professionals

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Summary:

For this presentation, participants will be able to identify core competencies of an entry-level professional in Natural Resource Based Outdoor Recreation Management. Participants will be able to align program learning objectives within preparatory curriculum to meet job market needs in Natural Resource Based Outdoor Recreation Management. Participants will develop a roadmap to successful job attainment by setting realistic, achievable goals to obtain needed entry-level competencies in Natural Resource Based Outdoor Recreation Management.

Abstract

Entry-Level Competencies for Natural Resource Based Outdoor Recreation Management Professionals

For this presentation, participants will be able to identify core competencies of an entry-level professional in Natural Resource Based Outdoor Recreation Management. Participants will be able to align program learning objectives within preparatory curriculum to meet job market needs in Natural Resource Based Outdoor Recreation Management. Participants will develop a roadmap to successful job attainment by setting realistic, achievable goals to obtain needed entry-level competencies in Natural Resource Based Outdoor Recreation Management. In this study, researchers asked natural resource based outdoor recreation experts to contribute categories and descriptions of entry-level competencies a person would need to have for an entry-level job after completion of an undergraduate / Bachelor's degree in Recreation, Parks, and Leisure Services emphasizing in Natural Resource Based Outdoor Recreation Management.

This study utilized a modified Delphi technique to obtain respondent data. Researchers selected expert federal, state, county and city government professionals nationwide within the natural resource based outdoor recreation management field to provide expert input into the study. Delbecq *et al.* (1975), Hurd and Buschbom (2010), and Anderson-Parente (1987) suggest at least 10 experts and no more than 30 would be sufficient to rigorously complete a Delphi study. Researchers administered a confidential, emailed survey via private email distribution lists to a targeted sample of natural resource based outdoor recreation management experts. To reduce respondent burden and preserve current relevance, the

distribution and response period lasted a total of three months during typical off-season for the majority of public land and water management agencies nationwide.

Delphi technique requires several rounds of input from respondents to populate, review, and build consensus on, for example, a list of entry-level competencies needed for agencies intending to employ natural resource recreation managers. Respondents first populated a list of relevant competencies and built consensus during the response period. Researchers utilized a consensus-building methodology for this study throughout three rounds of data collection from experts. After respondents returned data during the first round, researchers compiled and removed redundancy in responses. Round two of data collection asked respondents to review the condensed list of competencies and rate the competencies on a scale of “1” equaling no importance to “5” equaling extreme importance with “3” being equally unimportant/important, “99” being no response, and with cannot decide the importance as “0.”

Researchers aligned the list of competency categories with an average rating from the group of experts. Researchers then asked respondents to provide their level of agreement for each category. Finally, respondents were to state whether or not they recommended modifications for the final list. From this Delphi study process, researchers constructed the Natural Resource Based Outdoor Recreation Manager Competency Framework (NRRMCF) to provide a basis for curriculum planning in higher education.

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Instructor Perceptions of Smartphone use in Outdoor Education Programs

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The study focused on instructor perceptions of general and appropriate use of mobile technologies in order to support learners in formal and informal outdoor education programs. The researchers explored the tensions between using smartphones, social behavior, and group dynamics in both front country and backcountry settings. Preliminary findings indicate that there are a set of common tensions between inappropriate and appropriate use for both instructors and students in these settings.

Instructor Perceptions of Smartphone use in Outdoor Education Programs

As technology, in particular mobile computing devices, continue to develop at astounding rates, more applications are being found for its utilization in many prosaic ways. The methods with which society conducts business and banks, shops and consumes, plays and entertains, learns and instructs, continues to be profoundly affected by mobile devices. ASYMCO recently reported that an estimated 49.5 million mobile applications or mobile apps are downloaded every day (Diedue, 2012). Because of their reasonable cost, their pervasive availability, and typical ease of use, mobile devices are expected to be used by 16 billion people in 2013 (Gartner Group, 2008).

As these communication devices continue to weave their way into everyday moments, they have become an expectation, a tool waiting to be used. Many individuals carry web capable mobile devices and can be found text messaging and searching webpages at all hours of the day. Learning through direct experience, through action and reflection is often difficult to impossible within the confines of a classroom. With mobile devices instantly accessing enormous amounts of information, the learning process can be changed from answer driven students seeking expertise from the instructor, to inquiry driven learners. This paradigm shift does not only apply to teaching and learning in formal context but to more informal learning situations such as outdoor education programs in national forests and wilderness areas. However, research in outdoor education programs in connection with the utilization of mobile devices and applications is limited.

Instructor attitudes towards smartphone use in outdoor education is poorly understood. In a topical analysis of outdoor leadership journals, Poff, Stenger-Ramsey, Ramsing, and Spencer (2013) found no mention of technology. Some instructors incorporate mobile technologies, smartphones in particular, in formal and informal outdoor education learning experiences (Hsiao, Lin, Feng, & Li, 2010; Lai, Chang, Li, Fan, & Wu, 2013). Other instructors embrace technology in the outdoors and focus on instructional affordances it offers. Walter (2013), for example, suggested using technology to intertwine

with nature by taking photos and digitally recording observations. Mobile technologies also facilitate collaborative work in online as well as face-to-face settings (Oblinger, 2003). Others shun mobile technologies in outdoor settings. Outdoor instructors may welcome or discourage smartphones in outdoor learning activities for pedagogical or personal reasons. Instructors may need training to integrate technology meaningfully with curriculum (Georgina & Olson, 2008).

While smartphones are increasingly common in outdoor settings, little research has considered educator perceptions regarding their appropriate uses, tensions that arise, and how those tensions are navigated within outdoor education programs. The purpose of this study is to identify the perceptions of outdoor educators regarding appropriate uses of these devices, policies regulating their uses, tensions associated with these policies, and how those tensions are managed. The following research questions guided the investigation:

1. Under what conditions do instructors welcome or discourage the use of smartphones and tablets during outdoor learning programs?
2. What boundaries exist for the appropriate/inappropriate use smartphones/tablets in outdoor programs?
3. What tensions exist regarding those boundaries?
4. How do instructors navigate these tensions during planned learning activities?

Setting and Participants

This study was conducted within the Outdoor Center at a small, land-grant research institution in the western United States during spring semester, 2017. The university has an annual enrollment of over 12,000 students and offers approximately 170 academic degree programs. The university has participated through the Outdoor Center in outdoor education programs since 1997. The Outdoor Center conducts a wilderness-based orientation program for incoming freshmen each summer and fall with options to participate in backpacking, rock-climbing, canoeing or mountain-biking trips. Every fall and spring semester, the center offers several seasonal informal outdoor programs (e.g., hiking, bouldering, canoeing, snowshoeing, cross-country skiing, etc.), clinics (e.g., bike or ski maintenance/tuning), and outdoor equipment rentals. Additionally, it offers a formal outdoor leadership development program that can lead to obtaining certifications such as Leave No Trace, and Wilderness First Aid or Wilderness First Responder.

The sample for the qualitative case study was drawn from students who had recently graduated from or were enrolled in their outdoor leadership program and who served as leaders for wilderness and outdoor adventure trips.

Procedure and Interview Protocol

A total of 12 outdoor leaders were invited to participate in the research study during a staff meeting held at the Outdoor Center. During the meeting, an invited member of the research team supplied all potential participants with a cover letter outlining the purpose and procedure of the research study, identifying potential risks and benefits, and explaining confidentiality. Individuals who were interested in participating were asked to provide their contact information. Those who indicated their interest were contacted via e-mail to schedule an interview and provided with a consent form. All participants were automatically entered into a drawing for one of three \$25.00 gift cards. Research protocols were approved by the university's Institutional Review Board before the research study was conducted.

Results

Preliminary results indicate that there are common tensions and accepted uses of smartphones in outdoor education settings. The full results of the study will be prepared and presented at the conference. References

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The Perceived Health Outcomes and Value of College Climbers: Exploring Why They Climb

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Introduction

In more recent years the sport of climbing has become more mainstream. It is now in the Olympics, many YMCAs, middle schools, and colleges. College climbing programs have become increasingly popular. Yet, we have very little evidence of the benefit outcomes and value of rock climbing college programs, or understanding the personal preferences of today's college climber. Additionally, colleges and universities are constantly seeking high-impact practices and beneficial programs that address flourishing and well-being (Shellman & Hill, 2017). According to the 2015 National College Health Assessment (AAC&U, 2015) over 56% of college students reported feeling "overwhelming anxiety." Many studies highlight the potential benefits of climbing in general and has it targets populations with specific disorders. Studies have determined training for rock climbing could reduce anxiety (Gallotta et al., 2015) and depression (e.g., Kleinstauber, Reuter, Doll & Fallgatter, 2017) among adults. Other programs support evidence of the physical benefits among youth with unhealthy lifestyles (Siegal & Fryer, 2015). The literature is still lacking on the beneficial outcomes and values of college climbing programs.

Research demonstrating objective, measurable outcomes is needed to justify funding, advocate for and guide the development of new facilities, improve best practices for management and programming, and increase participation (Freidt, Hill, Gómez, Goldenberg, & Hill, 2010; Goldenberg, Klenosky, O'Leary, & Temple, 2000; Gómez & Hill, 2016). Empirical evidence of outcomes and value is also instrumental to position and promote recreation services (e.g., college climbing programs) as a means to address current public issues, especially those related to health and quality of life. The Perceived Health Outcomes of Recreation Scale (PHORS) is theoretically grounded in Driver's (1998) benefits of leisure. A benefit of leisure, as defined by Driver (2008), is an outcome that causes (a) a change resulting in a more desirable condition than the preexisting state (IMPROV), (b) the continuance of a desired condition in order to prevent an undesired condition from occurring (PREV), or (c) the realization of a satisfying experience with regards to recreation (PSYC). The Means-end of Recreation Scale (MERS) reflected Gutman's (1982) means-end theory of (a) attributes (ATT), (b) consequences (CON), and (c) values (VAL) and effectively used in other outdoor studies. Therefore, the purpose of this study was to understand the differences in perceived health outcomes and expected attributes, consequences and values among college climbers across campuses.

Methods

The current pilot study seeks to examine the health benefits and values among college rock climbing programs by surveying their users. In the fall of 2017 through spring of 2018, 149 college students from various campuses across the county completed the 32-item Perceived Health Outcomes of Recreation Scale (PHORS) and Means-end of Recreation Scale (MERS). The PHORS and MERS have been used in previous research on National Scenic Trails, rock climbing, and mountain biking areas across the country, but not among climbers (e.g., Gómez, Hill, Zhu, & Freidt, 2016). The link was sent via the AORE listserv (convenience sample) to colleges and universities associate with the AORE. The measures were administered through Qualtrics using iPads at various climbing walls at schools around the country. A MANOVA was used to determine differences (i.e., the six identified outcomes) among climbers. A

multiple regression was used to determine if frequency of climbing would predict the six identified outcomes (e.g., prevention of a worse condition).

Results

In 2018, 149 climbers from 47 universities participated including Ball State University, University of Tennessee at Chattanooga, Cornell University, and Old Dominion University. Females represented 46% of the sample with a mean age of 22. The majority of participants (87%) self-reported as white; 78% reporting being heterosexual; 86% were single; and 86% were employed. Other demographics included 73% voted in the last election; 80% climb indoors and outdoors; and climbed on averaged 13 times/month. Forty-two percent of climbers have attended some college and 49% have college degrees. Regarding their level of professional organizations: 69% of climbers report using Leave No Trace (LNT) principles, but only 34% are LNT Members. Only 9% are Access Fund Members and 22% are AMGA/PCIA members.

Cronbach's Alpha for the three dimensions of the PHORS range from .88-91 and the MERS, .72-.87, and supported previously identified factor structure. The ANOVA revealed no significant difference between the six outcomes (PREV, IMPROV, PSYC, ATT, CON, and VAL) attained and: gender, membership (e.g., LNT), or climbing type (e.g. indoors). Multiple regression analysis was used to test if sex and any of the six outcome (e.g., PREV) significantly predicted participants' monthly climbing frequency. The results of the regression indicated consequences (CON) was the only significant positive predictor ($\beta = .30$), explaining about 12% of variances in participant monthly climbing frequency, $R^2_{Adj} = .12$, $F_{7,133} = 3.59$, $p < .01$.

Discussion

The lack of significant differences (except consequences) is certainly to be viewed cautiously due to the small sample size. However, the results indicate males and females, as well as climbers who belong to professional organizations, or whether they climb indoors or outside, all have benefit from climbing. This supports that of our indoor climbing population becoming more diverse than historically perceived (Hill, Gabriele, Ahl, Shellman, & Gómez, 2018). If more climbers were Leave No Trace or Access Funds members, there could be a chance of those members educating other climbers (Jones & Bruyere, 2004; Jones & Lowry, 2004). Access Fund members help support parks and public lands. Marketing parks and protected areas that are endangered of being abused or rezoned for commercial use to climbers can refocus the climbing communities attention on how they can help. A significant number of participants from this study voted in the last election (73%) but only 9% are Access Fund Members, an organization largely responsible for the protection of American climbing areas. With the climbing community's support, Access Fund memberships could rise along with environmental awareness. Finally, the multiple regression identified consequences (of the MERS) as a predictor for climbing frequency. More in-depth studies looking at this construct which focuses on social bonding and physical health are needed. This could also assist indoor climbing facilities with marketing toward individuals looking for these types of bi-products as a result of climbing.

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