Proceedings
of the
2020 Symposium on Experiential Education Research

presented at the
48th Annual International AEE Conference

Ryan Zwart, Editor and Co-Chair,
Curt Davidson, Editor and Co-Chair
Virtual Conference
November 12-14, 2020
Welcome to SEER

Welcome to the 20th Annual Symposium on Experiential Education Research (SEER). The purpose of this symposium is to provide a formal setting for the reporting of research in the broad areas of experiential education. Toward that end, all the research presentations submitted to SEER were blind reviewed by a panel of referees, and the scores tabulated by the SEER co-chairs before final decisions were made and themed sessions assembled. Whether accepted or not, the authors who submitted material should be congratulated for their efforts.

The events of this year, specifically, the COVID-19 pandemic, have required SEER to look a bit different as the Association for Experiential Education (AEE) conference moved to an entirely online format. As a result, we were forced to get a little creative. Presentations at this year’s SEER are a prerecorded fifteen-minute presentation. These recordings are available throughout the AEE conference platform for attendees to view. Presentations are grouped according to themes and an hour-long live session has been developed for any attendees to ask live questions of the presenters via a “Zoom session”. These sessions will be moderated by discussants familiar with the thematic line. In lieu of poster sessions, we have accepted a few more presentations this year for a total of seventeen presentations.

Along with the researchers who submitted their work for review, we also wish to recognize other people for their efforts in making the symposium a reality. First, we would like to thank the AEE staff members, including executive director Sherry Bagley and the 2020 conference host team for their support and coordination of SEER, as well as the Journal of Experiential Education editorial team for their continuing support of SEER. The scholars and practitioners who kindly served as reviewers of the submitted abstracts are Kristina Anderson, Andrew Bailey, Andrew Bittner, Andrew Bobilya, Yun Chang, Brian Croft, Brad Daniel, Curt Davidson, Ryan Hines, Jordan McIntire, Denise Mitten, Tommy Means, Dorothea Shuman, Kostas Stavrianakis, Jay Whittacre, and Ryan Zwart. We’d like to thank them for their service and commitment towards the systematic identification of high-quality academic projects. We would also like to thank Ryan Hines for his work copy editing this book of abstracts.

We would like to especially thank all the attendees of this year’s symposium for your viewing of the online recorded presentations, participation in the in-person Q&A sessions, and for reading the abstracts online. It is because of your interest and commitment to a greater understanding of experiential education that encourages research and practice efforts for the field. All this is done to better provide experiential education opportunities for the students and communities that you serve!

We appreciate you being a part of this year’s SEER,

Dr. Ryan Zwart and Dr. Curt Davidson, SEER Co-Chair
A Brief History of the SEER

The Symposium on Experiential Education Research (SEER) provides an outlet and venue for researchers in fields that use experiential education to present, share, dialogue, and further develop their research ideas. The first SEER took place at the Association for Experiential Education’s (AEE) 2001 International Conference in Charleston, West Virginia. Fittingly, it was Dr. Alan Ewert of Indiana University who conceived of and led the effort to establish that first SEER. A widely published researcher and author in the field of adventure-based education, Dr. Ewert is also known for his distinguished career in academia, three decades as an Outward Bound instructor, the Patricia and Joel Meier endowed Outdoor Leadership Chair, past editor of the *Journal of Experiential Education* (JEE), and as fellow and past president of the prestigious Academy of Leisure Sciences. In providing the leadership to launch SEER, Dr. Ewert gave back to an area of research he helped develop throughout his academic and professional career.

The symposium occurs concurrently with the International AEE Conference each year and involves the presentation of research papers from international scholars who use and research experiential education practices. The process by which papers are selected for SEER begins in the spring, when a call for papers is released by AEE asking researchers, graduate students, and research/practitioners to submit abstracts to a blind, peer-reviewed process facilitated by the co-chairs of SEER. Abstracts are sent out for blind review to a panel of scholars/researchers. Abstracts are reviewed for relevance to experiential education theory and practice, research methodology, and logic and clarity in writing. The papers are ranked, and the top abstracts are selected for oral or poster presentations at the annual International AEE Conference. In addition to the presentations, the abstracts are published as a proceedings booklet, which is distributed at the conference. Currently, AEE publishes the abstracts online. For about 10 years, the spring edition of the *Journal of Experiential Education* published these abstracts as a way to make them available to a wider readership. Reading these abstracts is a great way to get a glimpse of current research interests and innovative research methodologies used for experiential education research.

In Little Rock, Arkansas (2007), the SEER program was modified to 90-minute, theme-based sessions. Papers were grouped by topic in order to better promote SEER to practitioners and other conference attendees so they could attend sessions of interest. Each presenter was, and continues to be, allotted 20 minutes to present her/his/their research, which typically includes an introduction, a description of the methods employed, and the results and conclusions developed from the research. In addition to the papers presented, discussant remarks have been offered each year by leading scholars and practitioners in experiential education theory and practice. This has provided an opportunity for the initiation of substantive dialogue around current research.

Beginning in 2008, SEER partnered with the Council on Research and Evaluation (CORE) to explore ways to support the needs of AEE members and expand research about experiential education. As the use of experiential education philosophy and methodologies continues to grow and evolve in social, political, and economic contexts, research can play a vital role in helping maintain and further the mission of experiential education in helping children, youth, families, and communities. To this end, research in educational, therapeutic, recreational, and other experiential learning settings are all welcome in SEER.

Beginning in 2010 the AEE Award Committee named an annual Distinguished
Researcher Award Recipient. We hope that SEER continues to be one of the many mechanisms to help further AEE’s mission in the years to come.

In 2011, SEER Co-chairs Jayson Seaman and Alan Ewert initiated a research poster session at SEER. At the 12th Annual SEER held in Madison, WI, Co-chairs Alan Ewert and Stacy Taniguchi replaced the summary discussant at the end of each session with an open discussion concerning the relative nature of the studies presented and questions for further research. Graduate students were invited to lead these discussions. In 2012, SEER welcomed Dr. Denise Mitten as a Co-chair with Dr. Taniguchi. Dr. Mitten’s long dedicated service to AEE and experiential education research was a valuable asset to increasing the visibility of the SEER call for proposals and the number of submissions.

At the 13th and 14th SEER, Co-chairs Dr. Mitten and Dr. Taniguchi continued with the SEER format of the previous year and re-introduced the SEER poster session. They decided to go totally digital for the Proceedings of the Symposium of Experiential Education Research for the SEER and to make past abstracts available online through AEE’s website.

At the 15th Annual SEER, Dr. Mitten worked with Dr. Taniguchi to create a method to review proposals that addressed conceptual topics, in order to complement empirical submissions. At the 16th SEER Dr. Mitten continued her work as the SEER chair. Poster presenters were given time in the general sessions to give an overview of their work in preparation for their poster sessions, during the 17th SEER. Dr. Daniel, Dr. Bobilya and Dr. Faircloth served as co-chairs of the 18th SEER and included a discussant monitored time for questions following presentation sections.

The 19th SEER, was held in conjunction with the joint AORE/AEE conference, bringing together two of larger professional associations in the field of outdoor adventure and experiential education. Moderated discussions were held immediately following each session and allowed attendees to further dialogue with presenting researchers.

This year, during the 20th SEER we are faced with an unprecedented situation in the COVID-19 pandemic. As a result, the AEE conference and subsequently SEER has been shifted entirely online and includes prerecorded presentations with an hour set aside for sessions with SEER presenters (grouped by theme). These sessions during the conference consist of live video meetings where conference attendees can ask the researchers questions regarding their research. Despite the challenges of an online platform we trust that SEER will continue to be a place for researchers and practitioners alike to consider new ideas, develop furthered strategies, and contemplate alternative offerings throughout the field of experiential education.

We thank you for your continued support of SEER and hope you can join us this year and look forward to (hopefully) being back in person in 2021!

Dr. Ryan Zwart and Dr. Curt Davidson, 2020 SEER Co-Chairs
# SEER through the Years

<table>
<thead>
<tr>
<th>Year</th>
<th>Co-Chairs</th>
<th>Distinguished Researcher Award and location</th>
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<tbody>
<tr>
<td>2001</td>
<td>Alan Ewert</td>
<td>1st SEER @ AEE Charleston, WV.</td>
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<tr>
<td>2002</td>
<td>Alan Ewert</td>
<td>St Paul, MN</td>
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<td>2003</td>
<td>Alan Ewert, Jim Sibthorp</td>
<td>Vancouver, BC</td>
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<td>2004</td>
<td>Alan Ewert, Jim Sibthorp</td>
<td>Norfolk, VA</td>
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<td>2005</td>
<td>Alan Ewert, Jim Sibthorp</td>
<td>Tucson, AZ</td>
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<tr>
<td>2006</td>
<td>Jim Sibthorp, Keith Russell</td>
<td>St Paul, MN</td>
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<tr>
<td>2007</td>
<td>Keith Russell, Cheryl Stevens</td>
<td>Little Rock, AR</td>
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<td>2008</td>
<td>Keith Russell, Cheryl Stevens</td>
<td>Vancouver, WA</td>
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<td>2009</td>
<td>Cheryl Stevens, Jayson Seaman</td>
<td>Montreal, Canada</td>
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<td>2010</td>
<td>Jayson Seaman, Kath Pinch</td>
<td>Keith Russell; Las Vegas, NV</td>
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<tr>
<td>2011</td>
<td>Jayson Seaman, Alan Ewert</td>
<td>Mike Gass; Jacksonville, FL</td>
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<td>2012</td>
<td>Stacy Taniguchi, Denise Mitten</td>
<td>Lee Gillis; Madison, WI</td>
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<tr>
<td>2013</td>
<td>Stacy Taniguchi, Denise Mitten</td>
<td>Alan Ewert; Denver, CO</td>
</tr>
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<td>2014</td>
<td>Stacy Taniguchi, Denise Mitten</td>
<td>No award given; Chattanooga, TN</td>
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<td>2015</td>
<td>Denise Mitten</td>
<td>Denise Mitten, Portland, OR</td>
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<tr>
<td>2016</td>
<td>Denise Mitten</td>
<td>Anita Tucker; Minneapolis, MN</td>
</tr>
<tr>
<td>2017</td>
<td>Denise Mitten, Brad Daniel, Andrew J. Bobilya, Brad Faircloth</td>
<td>Christine Norton &amp; Jim Sibthorp, Montreal, Canada</td>
</tr>
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<td>2018</td>
<td>Brad Daniel, Andrew J. Bobilya, Brad Faircloth</td>
<td>Jayson Seaman, Orlando, FL</td>
</tr>
<tr>
<td>2019</td>
<td>Bruce Martin and Jeremy Jostad</td>
<td>Tonia Gray; Spokane, WA; Joint Research Symposium with AEE/AORE joint conference</td>
</tr>
<tr>
<td>2020</td>
<td>Ryan Zwart, Curt Davidson</td>
<td>No award given; Virtual Conference due to COVID-19 Pandemic</td>
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Ryan K. Hines, *Exploring motivational factors for student leadership of college outdoor adventure programs*, pg. 16.

Aya Hayashi, Brent J. Bell, Sean Harrington, & Tomohiro Miyamoto, *Exploring outcomes of outdoor orientation programs: Comparison between the United States and Japan*, pg. 19.

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Andrew Florence, *Trauma-informed adventure-based counseling: A promising approach for influencing developmental outcomes for youth*, pg. 58.
Schedule of SEER Online Q&A Sessions 2020

Session 1: Thursday, November 12, 2020 (3:00 PM – 4:00 PM)

SEER Session 1 – Education and College Programs
3:00 - Session introductions – Ryan Zwart
Session Discussion Begins
  • 3:05 – 3:15 - Lisa Meerts-Brandsma, Meagan Ricks, & Jim Sibthorp, Before, during, and after an immersion semester: A three-wave study on educational context and adolescent identity development
  • 3:15 – 3:25 - Brent J. Bell, Jorich Horner, & Renee Morrissette, Community college outdoor leadership programs – Looking for outdoor leadership
  • 3:25 – 3:35 - Ryan K. Hines, Exploring motivational factors for student leadership of college outdoor adventure programs
  • 3:35 – 3:45 - Aya Hayashi, Brent J. Bell, Sean Harrington, & Tomohiro Miyamoto, Exploring outcomes of outdoor orientation programs: Comparison between the United States and Japan
3:45 – 4:00 – Key points, clarification and research/practice implications, chaired by Brent Bell.

Session 2: Thursday, November 12, 2020 (5:00 PM – 6:00 PM)

SEER Session 2 – Experiential Education
4:00 - Session Introductions – Curt Davidson
Session Discussion Begins
  • 5:05 – 5:15 - Alice Morgan, Dave Smaldone, & Ali Jeney, What students say about science: A qualitative approach to science relevancy in adventure STEM education
  • 5:15 – 5:25 - Yun Chang, The effect of a service-learning outdoor expedition on adolescents’ civic responsibility and sense of community
  • 5:25 – 5:35 - Nicole Colston & Cheyanne Olson, Mapping the citizen science experience: Experiential pedagogies and learning outcomes in a place-based volunteer program
  • 5:35 – 5:45 - Elizabeth Yomantas, Unpacking conceptions of culturally responsive service learning in an EE program
5:45 – 6:00 Key points, clarification and research/practice implications, chaired by Brian Croft
Session 3: Friday, November 13, 2020 (10:30 AM – 11:30 AM)

SEER Session 3 – Health and Benefits
10:30 - Session Introductions – Ryan Zwart
Session Discussion Begins
• 10:35 – 10:45 - Michael Riley, Social regulation in outdoor experiential education
• 10:45 – 10:55 - Erik Rabinowitz, Chris A. B. Zajchowski, & J. Kyle Davis, Canaries at the climbing wall: A comparative study of particulate matter at two university climbing walls
• 10:55 – 11:05 - Ryan Zwart, An exploratory analysis of the relationship between outdoor adventure recreation activity type and environmental self-selected strategies for health promotion
• 11:05 – 11:15 - Deborah Powers, Perceptions of the benefits and effects of a rock-climbing weekend for veterans and their families
11:15 – 11:30 - Key points, clarification, and research/practice implications, chaired by Curt Davidson.

Session 4: Friday, November 13, 2020 (2:00 PM – 3:00 PM)

SEER Session 4 – Mental Health & Wellness
2:00 - Session Introductions – Curt Davidson
Session Discussion Begins
• 2:05 – 2:15 - Esther Ayers, A literature review of adventure therapy with Latinx youth in community-based settings: Implications for research and practice
• 2:15 – 2:25 - Chiara Borelli, Alessandra Gigli, & Giannino Melotti, Deeping the inside: Practitioners’ representations of the underlying processes in adventure education and therapy programs in Italy
• 2:25 – 2:35 - Rebecca Wallingford Meier, Reclaiming control in the vertical realm: A phenomenological study of female rock climbers with mental illness
• 2:45 – 2:55 - Andrew Florence, Trauma-informed adventure-based counseling: A promising approach for influencing developmental outcomes for youth
2:55 – 3:00 - Key points, clarification, and research/practice implications, chaired by Christine Norton.

ON THE NEXT PAGES, ABSTRACTS IN ORDER OF SECTION
BEFORE, DURING, AND AFTER AN IMMERSION SEMESTER: A THREE-WAVE STUDY ON EDUCATIONAL CONTEXT AND ADOLESCENT IDENTITY DEVELOPMENT

Lisa Meerts-Brandsma, Weber State University (lmeerts@weber.edu)
Meagan Ricks, University of Utah
Jim Sibthorp, University of Utah

Review of Literature

As youth enter adolescence, they begin to answer the question, “Who am I?” by engaging more deeply in the process of identity development (Erikson, 1968). Identity development is thought to comprise two aspects: exploration, where a person considers various options about who they might be, and commitments, where a person decides that an option is a part of who they are (Luyckx et al., 2008; Meeus, 2011). As youth grow increasingly confident in their identity, they move toward identity consolidation where their identity becomes more stable (Meeus, 2016). A consolidated identity is associated with positive well-being (Crocetti, Erentaitė, & Žukauskienė, 2014), and is, therefore, desirable.

The complex pathway to identity consolidation can be affected by multiple variables such as personality, parenting styles, education, and relationships (Meeus, 2016). While no one ideal or “right” pathway exists, certain trajectories seem more likely than others to support positive youth development (Topolewska-Siedzik & Cieciuch, 2018). Crocetti (2017) has called for research into interventions that facilitate identity development, arguing that early exposure to opportunities where youth can develop their identity may help people lead healthier lives. Early developmental experiences can have significant impacts because they set a direction for growth.

Experiences that are both immersive and grounded in experiential education appear to impact identity development because they provide a context for youth to engage in critical thinking and give and receive feedback from teachers and peers that can help them understand themselves (Meerts-Brandsma & Sibthorp, 2020; van Doeselaar et al., 2020). Immersion experiences are those where students leave home, and live in a bounded social system while sharing similar goals. However, little is known about the longitudinal impact of immersive experiential education on identity formation, particularly after the experience concludes, although research suggests that context may play a role (van Doeselaar et al., 2020). Many of the variables thought to impact identity development are present in immersive experiences that employ experiential education. Experiential education requires collaboration between students, their peers, and their teachers, which can foster stronger relationships among all parties (Martin, Papworth, Ginnis, & Liem, 2014; Tarrant, Rubin, & Stoner, 2015). The reflective processes that students engage in can promote discussions, and meaning-making as students analyze the educational experiences.

The study’s purpose was to examine how adolescent identity development was impacted by an immersive experience based in experiential education by looking at identity development processes and educational context variables before, during, and after the experience.

Methods

Students who were enrolled at a Semester School Network (SSN) school in fall 2018 and spring 2019 were invited to complete the survey. The SSN is a group of semester-long high schools that employ experiential education in their curriculum (Semester School Network, n.d.). The survey included two sections. Context variables that could occur daily were assessed on a 7-point Likert scale. The remaining variables were assessed on a 5-point Likert scale following the original survey design. The first component examined context variables: thinking about their values, discussing their values, trying new things (Hansen & Larsen, 2005), teacher to student relationship (Panorama Education, 2015), and sense of belonging (Panorama Education, 2015). The second component included the Dimensions of Identity Development Scale (DIDS), which assessed identity development processes (Luyckx et al., 2008).
Results
The survey was administered in fall 2018 (n = 467), winter 2018 (n = 361), and spring 2019 (n = 133). The survey population was 65 percent female, 88 percent White, and averaged 16.4 years old. We conducted four paired t-tests for each variable where we compared time 0 to 1, 1 to 2, 2 to 3, and 1 to 3. Time 0 was one semester before their semester school, time 1 was immediately prior to their semester school, time 2 was at the end of their semester school, and time 3 was one semester after their semester school. We used paired t-tests to accommodate the within-subjects variability while acknowledging that the design and response rates varied at the four time-points, making a traditional repeated-measures design untenable.

Table 1. Mean change in student semester survey scores across four-time comparisons

<table>
<thead>
<tr>
<th>DIDS</th>
<th>Time 0 to 1</th>
<th>Time 1 to 2</th>
<th>Time 2 to 3</th>
<th>Time 1 to 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commitment-making</td>
<td>0.02</td>
<td>0.52***</td>
<td>-0.13</td>
<td>0.54***</td>
</tr>
<tr>
<td>Identification with commitment</td>
<td>0.02</td>
<td>0.29***</td>
<td>-0.08</td>
<td>0.25**</td>
</tr>
<tr>
<td>Exploration in breadth</td>
<td>-0.05</td>
<td>0.21***</td>
<td>-0.18*</td>
<td>0.13</td>
</tr>
<tr>
<td>Exploration in depth</td>
<td>-0.01</td>
<td>0.28***</td>
<td>0.00</td>
<td>0.44***</td>
</tr>
<tr>
<td>Ruminative exploration</td>
<td>-0.01</td>
<td>-0.22***</td>
<td>0.18</td>
<td>-0.04</td>
</tr>
<tr>
<td>Educational context</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thinking about values</td>
<td>0.12</td>
<td>1.27***</td>
<td>-0.86***</td>
<td>0.75***</td>
</tr>
<tr>
<td>Discussing values</td>
<td>0.07</td>
<td>1.73***</td>
<td>-1.40***</td>
<td>0.38**</td>
</tr>
<tr>
<td>Sense of belonging</td>
<td>-0.10*</td>
<td>1.12***</td>
<td>-1.40***</td>
<td>-0.03</td>
</tr>
<tr>
<td>Trying new things</td>
<td>0.02</td>
<td>1.02***</td>
<td>-1.02***</td>
<td>0.35**</td>
</tr>
<tr>
<td>Teacher to student relationship</td>
<td>-0.04</td>
<td>0.97***</td>
<td>-1.11***</td>
<td>-0.18</td>
</tr>
</tbody>
</table>

* significant at p <.05, ** significant at p <.01, *** significant at p <.001

The results show that all DIDS variables significantly increased except for ruminative exploration, which is reversed scored, while at their semester school (time 1 to 2). Their DIDS scores did not significantly change when they returned home (time 2 to 3) except for exploration in breadth, which significantly decreased. One semester after their semester school, their DIDS scores were significantly higher on commitment-making, exploration in-depth and identification with commitment than before their semester (time 1 to 3). The educational context variables showed that all five were significantly higher while at their semester school (time 1 to 2). When they returned home, all variables scored significantly lower (time 2 to 3). One semester after their semester school, students had significantly higher scores on thinking and discussing their values, and trying new things than before their semester (time 1 to 3).

Discussion
The purpose of this study was to understand how adolescent identity development was impacted by an immersion semester that was grounded in experiential education. The findings suggest that the impact of semester schools continues for at least one semester after a semester school, which would suggest that these types of experiences can affect one’s identity development trajectory. While the context of the semester school might create an environment with safe and supportive relationships, as indicated by the sense of belonging and teacher to student relationship variables, students are not entirely dependent on the context in order to continue to engage in identity development processes.

Typical adolescent development pathways have not been fully defined, but the literature suggests that stability is more common than maturational (Meeus, 2011). As one matures and moves towards identity consolidation, they typically engage in less exploration and more commitment. The data suggest that students at semester schools increase in all identity development processes, but that as they return home, they become more committed and engage in less exploration in breadth. While continued study is
needed, these results suggest that semester schools, as an example of immersion experiences grounded in experiential education, may have lasting impacts on adolescent identity development.

References


COMMUNITY COLLEGE OUTDOOR LEADERSHIP DEGREE PROGRAMS—LOOKING FOR OUTDOOR LEADERSHIP

Brent J. Bell, University of NH (bbell@unh.edu)
Jorich Horner, Kalamazoo College,
Renee Morrissette, University of NH

The number of U.S. residents involved with outdoor activities has been growing rapidly in the last decade (Outdoor Foundation, 2015). This will likely increase a need for capable, technically qualified outdoor leaders and guides. The purpose of this study is to explore the potential for community colleges to fulfill the outdoor workforce’s growing needs. Community colleges (two-year government-supported colleges that offer associates degrees) may represent an accessible option for outdoor leader training based upon their prevalence, relatively low tuition, and access to financial aid. In 2015, for example, 41% of all undergraduate students in the U.S. were enrolled in community colleges (American Association of Community Colleges, 2019). Information is lacking on how many community colleges train outdoor leaders and the basic curricular features of the associate degrees in outdoor leadership. This study sought to answer the questions of how many academic outdoor leadership programs (OLP’s) currently exist in the community college system in the U.S. and describe the common features of these programs.

Methods
This study used a census methodology, a foundational research method of accurately counting a defined population (Bell, Holmes, & Williams, 2010). The population was accredited community colleges, which were compiled from a list of colleges maintained by the University of Texas at Austin (UT–Austin) and accuracy was verified against multiple state community college lists.

Every community college website in the United States was searched using various terms (e.g., “outdoor,” “recreation,” and “adventure”) to find OLP’s. When an outdoor program was identified, the college’s course catalog was searched for evidence that it was an outdoor leadership degree program. For the purpose of this study, OLP’s contained courses that focused on training students to be instructors or trip leaders in an outdoor discipline. This criterion was satisfied if:
(a) students were required to take outdoor activities classes in one or more disciplines at the intermediate level or above (indicating a skill proficiency beyond the beginner level) or
(b) the course description listed leadership in the discipline as an element of the class.

Survey Development and Distribution
Once an OLP was identified, the researchers requested faculty/staff complete a 63-question survey inquiring about the curricular/demographic features of the OLPs. Questions focused on student demographics, wilderness medicine requirements, outdoor leadership courses, program curriculum, program director (faculty) characteristics, and student characteristics.

Results
The first stage of the study, identifying community colleges with OLPs, found 57 programs offering an associate degree, a certificate, or an equivalent degree in outdoor leadership, outdoor recreation, outdoor education, or similar program. Program names varied by school, sometimes called outdoor leadership, outdoor education, outdoor recreation, all which met our criteria. After a detailed review of degree requirements and core classes evaluations, the study concluded that 30 community colleges offered an OLP. One anomaly to the number of colleges was Colorado, which has OLPs at four community colleges. One of those four colleges has seven campuses, each offering an OLP with distinct curriculum and staff. Hence, the number of OLPs differs from the number of community college campuses, resulting in a total of 36 programs at 30 community colleges.

The follow-up survey inquiring about the OLPs’ curricular and demographic features was sent to 33 of the 36 programs via email. Contacts were unavailable for three programs, one program was missing a director, and two programs did not respond to multiple contacts. A total of 23 survey responses were
OLP enrollment over the past three years was reported as steady (52.6%) or growing (36.8%). The study also found that geography is a major determining factor for OLP availability, as the typical OLP is located 19 miles from the nearest state or national forest and within a two-hour drive of a major U.S. mountain range (e.g. Appalachians, Cascades, or Rockies). Interestingly, the Great Plains of the Midwest have one of the highest per capita rates of participation in outdoor recreation activities (Outdoor Foundation, 2015). However, no community college OLPs exist in these states.

**Discussion**

Evidence of 36 growing OLPs is great news, however, the 36 OLP’s reported training students for the activities that outdoor education programs such as NOLS and Outward Bound use most often, such as backpacking, kayaking, and climbing. We wondered if community college OLPs may consider expanding beyond the more traditional outdoor activities to those expected to grow in the future, for example activities like kiteboarding and surfing (Outdoor Foundation, 2015). The mismatch in prospective interests could result in a missed opportunity to prepare qualified leaders. To ensure OLP managers can keep ahead of national or regional trends, attending to participation rates in outdoor activities and then adjusting curriculum to future leadership needs could help expand the quality of the national leadership pool. This is good advice for any academic program, but community colleges may have an advantage of being able to pivot quickly in response to workforce trends and the ability to offer affordable training in comparison to other avenues.

Overall, increased leadership training may provide an important opportunity for the outdoor recreation industry. Thoughtful planning around growing interests in outdoor activities has the potential to increase the quality of a user’s experience, infuse these new activities with sophisticated risk management, and potentially start a renaissance of outdoor education programming. Without planning for future trends, the job market may seek less qualified leaders with less sophistication in the framing, organizing, and managing of risk for outdoor adventure experiences. A reduced quality of programming may impact the reputation of the entire job sector.

Community college program leaders reported a lack of time and support for professional development, and little knowledge of other OLP’s. Investment into professional development and increased cooperation between programs could be a wise investment for U.S. outdoor education. Furthermore, studies have already concluded that the number of students opting for a community college education are rising (American Association of Community Colleges, 2019). Utilizing the community college system to help advance the quality and sophistication of outdoor leader training is a potential to be realized.

**References**


EXPLORING MOTIVATIONAL FACTORS FOR STUDENT LEADERSHIP OF COLLEGE OUTDOOR ADVENTURE PROGRAMS

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Introduction

Since the formation of the first college outdoor recreation program at Williams College in 1915, colleges in the United States have offered formal outdoor recreation programming for students (Boetecher & Gansemer-Topf, 2015). College outdoor adventure programs (COAPs), typically focus on student appreciation of nature and time spent in the outdoors, acquisition of technical skills necessary to engage in outdoor recreation and adventure activities, and the development of outdoor leadership techniques (Boetecher & Gansemer-Topf, 2015). Gilbertson and Ewert (2015) suggested that we should “study individuals to determine how their motivations to participate in adventure activities change over time” (p. 295). This study builds upon our understanding of motivational factors associated with those engaged in outdoor adventure leadership and specifically focused on motivations of a sub-category of outdoor leaders, college students, to undertake and continue outdoor leadership. In doing so this research explored changes in motivation through the course of involvement of COAP trip leaders.

Review of Literature

A review of literature reveals a topic has not been adequately addressed. Flood and Parker (2014) offered that COAPs and campus outdoor recreation organizations provide opportunities for students to engage in adventurous leisure activities such as challenge course initiatives, skills courses, and guided trips. COAPs may also equip students to undertake activities that are “self- motivated, occurring in small groups, and require a natural outdoor setting” (Flood & Parker, 2014, p.104-105). Inquiry into the experiences of adventure guides and instructors is a new and relatively unexplored realm in outdoor recreation and adventure research though there have been several articles that examined emotional aspects of the experiences of adventure guides and tour leaders (Carnicelli-Filho, 2013; Hayashi & Ewert, 2006; Holyfield & Jonas, 2003; Sharpe, 2005; van Dijk et al., 2011; Wong & Wang, 2009).

Literature that adds to the knowledge base relevant to motivations for leadership in COAPs is scant at best. Zwart (2016) investigated motivational factors associated with different COAP activities among trip leaders and participants. Erpestad (2013) explored college outdoor education students’ motivations to study outdoor education and how they value the field of outdoor education. Boetecher and Gansemer-Topf (2015) investigated how participating in an outdoor recreation training trip impacts students’ leadership identity development.

Methodology

This study is qualitative in nature and guided by a constructivist epistemology where “understanding the meaning people have constructed, that is, how people make sense of their world and the experiences they have in the world” (Merriam, 2009, p. 13) informed the inquiry process in design, analysis, and reporting. The purpose of conducting this research with a constructivist approach was to describe, understand, and interpret the world (Merriam, 2009) of study participants in relation to the research question. The research question asks: is there a change over time in motivational factors that influence students to participate in outdoor adventure leadership and leadership development in college outdoor adventure programs? Two one-on-one conversational interviews with each study participant (n=11) were conducted in person and via telephone. Audio data were recorded, stored, and transcribed verbatim. Data were categorically organized and thematically coded using Nvivo qualitative data analysis software. Inductive reasoning guided multiple rounds of open coding and frequent, intuitive, and reflexive organization of thematic coding through the process of analysis. Validity was approached by inviting study participants to review their interview transcripts, subsequent coding and interpretations of their narrative. Reliability and bias were accounted for via peer review of coding and interpretations of data.
Findings

All study participants became involved with trip leading after participating in some form of adventure programming provided by the host organization, and several participants indicated that they had participated in formal OAE programming such as NOLS or Outward Bound before college. Factors related to participants’ motivations to become trip leaders include social attraction to the organization and its members, seeking others like them, organizational culture and being made to feel welcome by COAP leaders and participants, seeking a peer group, and making friends as part of their early transition to college life. Other factors for beginning COAP involvement include being motivated to learn new skills, looking up to outdoor leaders from previous COAP experiences, wanting to provide and share experiences with others, and the formal organizational structure of the COAP leadership hierarchy.

A major motivation related to study-participants’ continued COAP involvement was learning, including learning skills to teach them, personal growth, and the experiential learning environment. Other themes for continued involvement include achievement, elements of the adventure experience, leader team dynamics, natural beauty, being away, group interactions and extended experiences in nature. Mentors and role models, i.e., older and more experienced COAP leaders played a role in study participants’ motivations to continue leadership with the organization. Findings of this study also suggest that through the course of involvement in trip leading, the locus of motivation for trip leading shifts from being focused on the self to being focused on others, as in, starting and continuing trip leading is motivated by self-oriented factors (making friends, learning new skills, etc.) but shifts to being focused on giving back by helping younger and less experienced trip leaders by the end of their involvement in trip leading.

Discussion

Upon a second review of literature, many findings of the current study are highly relevant to and build upon the base of knowledge found in previous research and theoretical frameworks related to outdoor leadership and adventure participation. Current findings build upon previous research which broadly suggests that leisure history, prior experience, myriad social factors, learning and teaching, shared experiences and spending time in nature, elements of the adventure experience (such as challenge, being in remote locations, small group dynamics, and type 2 fun), escape, and novelty are motivating factors. The finding that through the process of outdoor leadership development, motivations may shift from being focused on improvement of self to a focus of helping others improve is also supported in the literature (Kleiber et al., 2012; Koesler, 2002), as is the concept that level of experience influences motivation for participation (Creyer et al., 2003; Ewert, 1994; Todd, Anderson, Young, & Anderson, 2002). Theoretical frameworks that were found to be relevant and relatable to the current findings include Sociocultural Theory (Vygotsky, 1978), Theory of Planned Behavior (Ajzen, 1991), and Self Efficacy Theory (Bandura, 1977; Bandura, 1997). These frameworks are relatable to the motivations for trip leaders to become involved and continue participation in trip leading. Findings also have implications for recruitment and retention of trip leaders for COAP organizations and are potentially informative for other outdoor recreation and adventure programs writ large.
References


EXPLORING OUTCOMES OF OUTDOOR ORIENTATION PROGRAMS: COMPARISON BETWEEN THE UNITED STATES AND JAPAN

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Brent Bell, University of New Hampshire
Sean Harrington, University of New Hampshire
Tomohiro Miyamoto, Tohoku University, Japan

In nearly five decades of research, outdoor orientation program (OOPs) have reported positive benefits for U.S. college students (Bell et al., 2014), but few research studies have considered non-U.S. OOPs. As in the U.S., the higher education system in Japan is concerned with student success, which may be affected by OOPs. This study compares a Japanese OOP with eight U.S. OOPs to explore if the Japanese program has similar outcomes. Researchers assessed commonalities and cultural differences to understand OOPs effectiveness in a different country.

Review of Literature
Social support and personal connection are pervasive human needs, but their expression can vary culturally. For example, Morlin et al. (2015) found that social support among U.S. and Japanese college students differed: the U.S. students more freely asked for and expected social support, even from autonomous individuals. Japanese social support was modeled more on empathy and was typically provided by close friends and not expected by autonomous individuals (Morlin, et al., 2015). Such differences could impact the outcomes of an outdoor orientation program.

Outdoor orientation programs have been known to increase social support (social provisions) at both U.S. colleges (Bell, 2005) and Japanese colleges (Hayashi et al., 2015; Hayashi et al., 2018) but a host of other participant outcomes remain unknown. Therefore, using a large U.S. dataset, this study is an exploratory comparison between a Japanese OOP and select U.S. OOPs to expand the understanding of how culture may play a role in OOPs’ outcomes.

Methods
Researchers used the 80-question Outdoor Orientation Benchmarking Survey (TOOBS) to assess student experiences with OOPs (Bell, 2018). The survey was translated into Japanese to allow comparisons on variables associated with college success such as social provisions, belongingness, and trust. All survey questions were optional, so response rates varied by question.

To create a close comparison to the Japanese program, eight US OOPs were selected based on similarities of: 1) curriculum model; 2) leader training; and 3) program length, resulting in 366 U.S. cases. Japanese subjects included 400 students who participated in the 2019 OOP resulting in 205 cases. Survey questions were translated into Japanese and back-translation was conducted among three researchers to insure validity of items. This study was approved by the institutional review board at Biwako Seikei Sport College, Japan.

Surveys were provided to OOPs participants via a link to an online survey 3-4 months after program completion. Data analysis was conducted using the Statistical Package for the Social Sciences. Researchers explored the data using t-tests, ANOVA and correlation to search for commonalities and differences between the Japanese and U.S. OOPs groups.

Results
Initial analyses used a repeated measure ANOVA to test the differences between countries (Table 1). A set of five proxy-pretest questions were analyzed for changes due to an OOP experience. Results showed that participants in both countries significantly reduced their anxiety levels about their transition through OOP experiences. Furthermore, participants perceived the OOP experience led to significant gains along all five variables important for college success. The scores of the US students were significantly higher than the Japanese students on all variables, although the effect sizes across both
populations were small.

Table 1. Descriptive statistics and ANOVA results of variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>US Before</th>
<th>US Now</th>
<th>Japan Before</th>
<th>Japan Now</th>
<th>Interaction Effect</th>
<th>main effect (before-now)</th>
<th>main effect (US-Japan)</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>366</td>
<td>205</td>
<td>360</td>
<td>205</td>
<td>357</td>
<td>354</td>
<td>322</td>
</tr>
<tr>
<td>mean(SD)</td>
<td>2.24(.58)</td>
<td>1.49(.93)</td>
<td>6.28(1.79)</td>
<td>6.69(2.62)</td>
<td>6.18(.01)</td>
<td>6.18(.01)</td>
<td>6.18(.01)</td>
</tr>
<tr>
<td>SD</td>
<td>1.40(.53)</td>
<td>1.60(.58)</td>
<td>6.91(1.71)</td>
<td>2.62(.63)</td>
<td>.54(.33)</td>
<td>.54(.33)</td>
<td>.54(.33)</td>
</tr>
<tr>
<td>Anxiety</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Curiosity with academic topics</td>
<td>317</td>
<td>190</td>
<td>344</td>
<td>190</td>
<td>331</td>
<td>334</td>
<td>328</td>
</tr>
<tr>
<td>mean(SD)</td>
<td>6.28(1.79)</td>
<td>5.83(1.63)</td>
<td>6.19(1.78)</td>
<td>5.68(1.78)</td>
<td>6.18(.01)</td>
<td>6.18(.01)</td>
<td>6.18(.01)</td>
</tr>
<tr>
<td>SD</td>
<td>6.91(1.71)</td>
<td>6.31(1.54)</td>
<td>7.21(1.51)</td>
<td>6.46(1.62)</td>
<td>.54(.33)</td>
<td>.54(.33)</td>
<td>.54(.33)</td>
</tr>
<tr>
<td>Ability of effective communication</td>
<td>344</td>
<td>187</td>
<td>354</td>
<td>187</td>
<td>336</td>
<td>339</td>
<td>327</td>
</tr>
<tr>
<td>mean(SD)</td>
<td>6.19(1.78)</td>
<td>5.68(1.78)</td>
<td>6.33(1.61)</td>
<td>6.33(1.61)</td>
<td>6.18(.01)</td>
<td>6.18(.01)</td>
<td>6.18(.01)</td>
</tr>
<tr>
<td>SD</td>
<td>7.21(1.51)</td>
<td>6.46(1.62)</td>
<td>7.00(1.54)</td>
<td>7.00(1.54)</td>
<td>.54(.33)</td>
<td>.54(.33)</td>
<td>.54(.33)</td>
</tr>
<tr>
<td>Solving inter-personal problems</td>
<td>354</td>
<td>205</td>
<td>354</td>
<td>205</td>
<td>349</td>
<td>343</td>
<td>340</td>
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<tr>
<td>mean(SD)</td>
<td>6.33(1.61)</td>
<td>5.85(1.79)</td>
<td>6.69(2.62)</td>
<td>6.38(1.73)</td>
<td>6.18(.01)</td>
<td>6.18(.01)</td>
<td>6.18(.01)</td>
</tr>
<tr>
<td>SD</td>
<td>7.00(1.54)</td>
<td>6.46(1.62)</td>
<td>7.07(1.54)</td>
<td>7.07(1.54)</td>
<td>.54(.33)</td>
<td>.54(.33)</td>
<td>.54(.33)</td>
</tr>
<tr>
<td>Understanding other perspectives</td>
<td>339</td>
<td>199</td>
<td>339</td>
<td>199</td>
<td>328</td>
<td>331</td>
<td>330</td>
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<tr>
<td>mean(SD)</td>
<td>6.38(1.60)</td>
<td>6.01(1.72)</td>
<td>6.59(1.33)</td>
<td>6.59(1.33)</td>
<td>6.18(&lt;.001)</td>
<td>6.18(&lt;.001)</td>
<td>6.18(&lt;.001)</td>
</tr>
<tr>
<td>SD</td>
<td>7.43(1.30)</td>
<td>6.55(1.68)</td>
<td>7.59(1.33)</td>
<td>7.59(1.33)</td>
<td>.54(.33)</td>
<td>.54(.33)</td>
<td>.54(.33)</td>
</tr>
<tr>
<td>Ability to face challenges</td>
<td>328</td>
<td>195</td>
<td>328</td>
<td>195</td>
<td>312</td>
<td>315</td>
<td>310</td>
</tr>
<tr>
<td>mean(SD)</td>
<td>6.59(1.66)</td>
<td>5.94(1.70)</td>
<td>6.79(1.33)</td>
<td>6.79(1.33)</td>
<td>6.18(&lt;.001)</td>
<td>6.18(&lt;.001)</td>
<td>6.18(&lt;.001)</td>
</tr>
<tr>
<td>SD</td>
<td>7.59(1.33)</td>
<td>6.74(1.62)</td>
<td>7.59(1.33)</td>
<td>7.59(1.33)</td>
<td>.54(.33)</td>
<td>.54(.33)</td>
<td>.54(.33)</td>
</tr>
</tbody>
</table>

Secondly, several social constructs associated with college adjustment were compared between the two countries using t-tests (Table 2). The US students reported significantly higher scores on all constructs except attachment. Based on the results of the effect sizes, the constructs of engagement with college and overall social provision showed the largest differences between the countries. The differences may derive from program design, cultural influence, or even response biases based on how students may interpret concepts differently (Chen et al., 1995; Tasaki et al., 2017). Further research is needed to understand the meanings of these differences.

Table 2. Descriptive Statistics and t-test results of constructs

<table>
<thead>
<tr>
<th>Construct</th>
<th>US</th>
<th>Japan</th>
<th>t (Welch)</th>
<th>p</th>
<th>ES (Cohen’s d)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engagement with College</td>
<td>357</td>
<td>202</td>
<td>14.02</td>
<td>&lt;.001</td>
<td>1.27</td>
</tr>
<tr>
<td>Attachment</td>
<td>360</td>
<td>205</td>
<td>12.06</td>
<td>&lt;.001</td>
<td>1.10</td>
</tr>
<tr>
<td>Adapted Social Provision</td>
<td>322</td>
<td>205</td>
<td>12.06</td>
<td>&lt;.001</td>
<td>1.10</td>
</tr>
<tr>
<td>Belonging</td>
<td>354</td>
<td>205</td>
<td>12.06</td>
<td>&lt;.001</td>
<td>1.10</td>
</tr>
<tr>
<td>Authenticity</td>
<td>359</td>
<td>205</td>
<td>12.06</td>
<td>&lt;.001</td>
<td>1.10</td>
</tr>
<tr>
<td>Overall Trust</td>
<td>322</td>
<td>205</td>
<td>12.06</td>
<td>&lt;.001</td>
<td>1.10</td>
</tr>
</tbody>
</table>

Furthermore, researchers tested if the amount of change reported in the proxy pre-test results (Table 1) were if correlated, using Pearson’s r, with the social constructs in Table 2. The results showed that students reporting increased scores of solving inter-personal problems of the US and Japanese students were significantly and positively correlated to all the constructs for college adjustment, suggesting the importance of this particular variable for students in both countries. Meanwhile, the increased scores of the variable ability to face challenges was positively correlated with all the social constructs for the US students only.

Discussion

The results demonstrated OOPs had common benefits to students in both countries. Many of the outcomes were similar; for example, reducing anxiety and solving interpersonal problems was an important outcome for all students. Some differences, such as the ability to face challenges showed similar growth, but the relationship with the social constructs differed by country. Both groups reported increased interpersonal and personal growth, which could be universally valuable to college students in transition in both countries.
References


WHAT STUDENTS SAY ABOUT SCIENCE: A QUALITATIVE APPROACH TO SCIENCE RELEVANCY IN ADVENTURE STEM EDUCATION

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Ali Jeney, West Virginia University

Students in the United States are falling behind the rest of the world in their interest and ability to study and work in STEM related fields, which may lead to an inability to fill vacancies in a growing job market (ACT, 2017). At the same time as the volume of STEM occupations is growing in comparison to non-STEM occupations, students have been performing at lower levels in STEM subjects (Daughery, 2013) and their interest levels in STEM remains stagnant (ACT, 2017). Students who are uninterested in STEM curriculum are unlikely to engage in STEM-based study or make a career in a STEM field (Murphy, 2003). Reasons for disinterest vary, but many students report that they dislike writing long reports, memorizing complicated scientific language, the repetitive study required for standardized testing, and feel bored in their science classes (Murphy, 2003; Osborne, Simon, & Collins, 2003; Owens et al., 2008). Furthermore, older students are more likely to hold negative attitudes toward science than younger (Murphy, 2003). By the time they have begun to make career decisions, many students may have already dismissed science, technology, engineering or mathematics as a career option. The concept of relevance may prove useful in understanding why students are experiencing lower levels of STEM interest. Students who find their course material as relevant and impactful to their lives through experiential engagement with curriculum may be more likely to see STEM as important or useful (Stuckey et al., 2013). Furthermore, Adventure STEM education may prove an effective method of increasing STEM relevance because of the discipline’s grounding in experiential education (Dewey, 1958) which uses student centric teaching methodology that may allow students to more easily make connections between curricular content and their immediate context (Stuckey et al., 2013; Ham, 2016).

Methods

In an effort to gain a better understanding of how students and teachers view the relevancy of science curriculum delivered via outdoor experiential education methods, the objective of this qualitative phenomenological study is to examine changes in the science attitudes of 6th grade students who attended a four-day adventure-based STEM camp in rural West Virginia.

Science Adventure School (SAS) is a residential outdoor learning camp situated in rural West Virginia. SAS focuses on experiential learning and combines two areas of curriculum: environmental education and adventure education. In the environmental education portion of the curriculum, students explore topics that include phenology, wetlands hydrology, and macro-invertebrates. The adventure education curriculum focuses on teaching students about the physical scientific principles behind archery, rock climbing, and ziplining. The overall goal of SAS is to increase high school graduation rates and subsequent enrollment in college, through early involvement in outdoor experiential STEM lessons.

In the Fall of 2019, semi-structured in-person interviews were conducted with a small subset of participating students (n=14) and teachers (n=8) from a larger quantitative study assessing program outcomes. The broader study involved 393 sixth grade students and teachers from 14 schools. For the qualitative portion of the study, student interview participants were purposively sampled through teacher recommendations, while participating teachers self-selected after being contacted via email. All participants were interviewed after their SAS experience. Interviews lasted between ten and thirty minutes and focused on questions concerning change in science attitudes. All interviews were recorded and transcribed verbatim. Teachers had the opportunity to review the transcript of their respective interviews. Data collected from these interviews was qualitatively analyzed for attitudes and themes involving science curricula relevance and STEM attitudes using conventional content analysis (Hsieh & Shannon, 2005). After initial codes and themes were established, two independent researchers reviewed the data, and generated their own codes and themes, before the group met and reached consensus on final codes.
and themes (Saldaña, 2016).

**Results and Discussion**

Overall, most students reported some level of increase in positive attitudes toward STEM, primarily in short-term outcomes including STEM knowledge, STEM self-efficacy, and STEM value. Student interviews showed three predominant themes: 1) weak elementary school STEM experiences, 2) preference for learning at SAS, and 3) changing STEM attitudes. When asked to describe their elementary school science classes, students reported that they spent the majority of their time reading from books, writing and taking notes, and memorizing material. Students preferred the experiential style of teaching at SAS and found learning easier because they could see tangible cause and effect relationships and could immediately put new knowledge into practice. A majority felt that STEM would be generally relevant to their lives and all were interested in pursuing a STEM career.

Teachers noticed a positive increase in STEM attitudes and classroom behavior, with the following predominate themes: 1) camp learning environment, 2) changing STEM attitudes, and 3) changing classroom community. All teachers felt that SAS was a positive learning environment for their students and provided a beneficial vehicle for learning STEM. After returning to their classrooms, they noticed that students had greater comfort answering questions in the classroom, an understanding of the concept of STEM as something bigger than their textbooks, and seemed interested in the subject of science. Teachers also reported changes in classroom dynamics and behavior including students having a greater sense of belonging to their schools, better relationships with teachers and peers, increased social responsibility, increased social self-efficacy, and increased curiosity.

Results indicated that SAS and similar informal settings may be more relevant to students than their classroom curricula because students learned through activities that were associated with immediately being able to put learning into practice (Dewey, 1958). Student results showed a greater willingness to engage with STEM when the subject was taught through adventure-based activities and had more positive attitudes associated with STEM. Teacher interviews also indicated that adventure STEM curricula can increase social and emotional learning, leading to implications for personal and social relevancy in addition to academic (Stuckey et al., 2013).
References


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THE EFFECT OF SERVICE-LEARNING OUTDOOR EXPEDITION ON ADOLESCENTS’ CIVIC RESPONSIBILITY AND SENSE OF COMMUNITY: A PILOT STUDY

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Background

Civic disengagement has been a global concern for many post-industrial societies. Policymakers and educators have also expressed concerns in the lack of civic responsibility among young people (Snell, 2010). How to transform our young people from passive observers to active participants has become an important and urgent task in the 21st century and is inherent in the mission of many outdoor adventure programs.

A large amount of research has provided evidence to support a strong relationship between participation in service-learning and civic engagement. These civic-related outcomes include the development of civic-related knowledge, skills, attitudes (Waldstein & Reiher, 2001), democratic and civic values (Hunter & Brisbin, 2000), future civic participation and engagement (Kahne & Sporte, 2008). Research has also shown strong relationship between sense of community and civic participation. Sense of community is perceived when a member shares an awareness of group membership, meets others’ needs while meeting his/her own needs, connects with other members emotionally, and influences each other (McMillan & Chavis, 1986). In Albanesi, Cicognani, & Zani’s study (2007), they found that it is important for adolescents to experience a sense of belonging to the peers’ group which helps to explain some of the association between civic engagement and social-wellbeing. To sum up, sense of community and meaningful involvement are critical in facilitating adolescents’ civic participation and engagement.

Recently a type of integration program, Service-Learning Outdoor Expedition, has responded to the society in terms of this urgent need in educational reform. Service-Learning Outdoor Expedition utilizes adventure-based programming combining with service-learning project in serving local communities. Outward Bound Schools being an example of incorporating services to people and the environment to their courses. Having students work with land managers like the US Forest Service and Bureau of Land Management on designated service projects have been an important way to help students develop a value of services, see the impact of their actions firsthand, and transfer this desire to serve their communities back home (Outward Bound, n.d.). However, few empirical studies have been conducted to investigate the effectiveness and outcomes of outdoor adventure programs with service-learning components. In response to the need to examine the practices and further strengthen this integration. The purpose of this study is to examine the effect of Service-Learning Outdoor Expedition on participants’ civic responsibility and sense of community.

Method

A total of 11 self-enrolled participants in 2018 summer expeditions were recruited for this study. The summer expeditions were offered by Deer Hill Expeditions (DHE), an outdoor adventure institution based in Durango, Colorado. DHE’s summer expeditions are a combination of river exploration, backpacking, and Native American service project. The outdoor adventure part of exploration took students into the community of service-learning project. With the guidance of local Native American’s community and expedition leaders, students spent three to four days working on a project, such as mending the fences, tending a sheep herd, or rebuilding a shade arbor.

The majority of participants are female (63.6%), age 16 (63.6%), without previous involvement with DHE (90.9%), or school-based service-learning experience (72.7%) with 54.5% of participants stated that they received scholarship for attending this program. This study adopted a pretest-posttest research design. Changes in participants’ levels of civic responsibility and sense of community were measured using a 24-item civic responsibility instrument (Furco, Muller, & Ammon, 1998) and an 8-item brief sense of community scale (Peterson, Speer, McMillan, 2008) issued at the 1st day and the last day of the program. The selected programs were typically 20- to 26-day with a service-learning component designed in the middle phase of expedition.
Results

Growth in both civic responsibility and sense of community

A preliminary analysis showed the mean scores of all dimensions using an overall dataset (N=11). In addition, the percentages of growth were also reported. Participants show 7.2% growth in civic responsibility and 5.4% growth in sense of community after participating the programs. Further examining the subconstructs, the result indicated that participants show improvements on all 3 dimensions of civic responsibility, especially in connection to community with a 15.9% growth. For sense of community, participants show improvements on 3 out of 4 dimensions, including influence (11.8%), membership (8.3%), and emotional connection (4.2%). However, participants show decreases in needs fulfillment by 2.1%.

Significant increases observed in “Connection to Community”

The results of paired sample t-tests showed that participants’ civic responsibility total scores significantly increased after participating expeditions ($p < .05$) with a moderate effect size (Cohen’s $d = 0.69$). Further examining the dimensions of civic responsibility, the result showed that participants’ perceptions toward connection to community increase significantly after participation ($p < .05$). However, no significant difference was found in participants’ sense of community total scores after participating expeditions ($p > .05$).

Discussion and Implications

Participants demonstrate heightened Civic Responsibility after participation in service-learning outdoor expedition. This result confirms previous findings (Aragon, Alfeld, & Hansen, 2013) which indicated that participants’ civic responsibility improved after participation in programs with service-learning intervention, comparing to regular curriculum without the service-learning component. Additionally, this finding enhances our understanding that service-learning outdoor expedition can play a role in promoting civic responsibility, especially in the aspect of building students’ connection to community.

Another finding of this study is that the measure of changes in participants’ sense of community does not reach statistical significance as expected. Research has shown that sense of community serves as a catalyst for civic participation (Chavis & Wandersman, 1990) and it is highly relevant to adolescents’ development in voice and power in community context (Evans, 2007). Further examining participants’ changes in the four dimensions of sense of community in this study, their “needs fulfillment” decrease by 2.1% though the difference is not statistical significant. A successful community is described that each person meets other members’ needs while meeting his/her own needs. This result may indicate that the individual/group relationship they perceived during expedition was not fulfilling for group members. It may be crucial for the expedition leaders to find out students’ needs at the early stage of expedition. Setting up realistic goals and reviewing them constantly may be helpful in fulfilling participants’ needs in the first place, and enhance students’ sense of community in the long run.

Note that several factors may limit the interpretation of the results of this study. The selected expeditions were offered by one institution and the power of interpreting results may be limited by small sample size. In addition, adding a follow up interview with expedition leaders may also enhance our understanding of what they did to build connection to the community.
References


MAPPING THE CITIZEN SCIENCE EXPERIENCE: EXPERIENTIAL PEDAGOGIES AND LEARNING OUTCOMES IN A PLACE BASED VOLUNTEER PROGRAM

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Cheyanne Olson, Oklahoma State University, (cheyanne.olson@okstate.edu)

Background

Citizen science projects have gained momentum in recent years and involved members of the public in ongoing scientific research. Nationally, there are an estimated 8,500 volunteers monitoring U.S. water bodies and 26 states sponsoring volunteer monitoring programs (Overdevest, Orr & Stepenuck, 2004). In Oklahoma, water quality data is collected by volunteers of Blue Thumb (BT), a state-wide program emphasizing stream protection through education and involvement of the community in monitoring local water-bodies.

Literature Review

Citizen science, broadly understood as public participation in scientific research projects (Bonney et al, 2009), is often used to support ecological research and conservation. The ‘citizen science’ experience is broad and includes different levels of involvement and kinds of participation in many settings, from virtual crowdsourcing to community problem solving to environmental conservation (Wiggins & Crowston, 2011). Outdoor recreation specialists, natural resource managers, and environmental educators are increasingly organizing and participating in citizen science programs. In addition to the potential of citizen science as an ecological research and conservation tool, there are many documented positive outcomes for volunteers, including providing enjoyment, developing a sense of community and agency, increased science literacy, and environmental behavioral gains (Cronin & Messemer, 2013; Jordan et al., 2011; Raddick et al., 2009).

While evaluation of outcomes from participation in citizen science is often listed as a high priority for practitioners and program coordinators, it remains a continued challenge for active and diverse programs, like Blue Thumb. Experiential education (EE) as a theory of practice explores many related outcomes and engaged learning contexts (such as, outdoor education and civic engagement) and has been used to guide the evaluation of citizen science programs (Brossard, Lewenstein, & Bonney, 2005; Cronin & Messemer, 2013). While there are several ‘typologies’ for participant engagement in citizen science projects (Shirk et al, 2012; Wiggins & Crowston, 2011), there are few works to date that align the processes of experiential learning (EL) with the program learning outcomes.

Methodology

As the first phase of a multi-phase evaluation design, the goal of this research is to map the experiential education processes and learning outcomes of the BT program. A mixed methods research design guides this programmatic review of BT and the guiding questions for the study: (1) What attributes and processes of experiential learning are found in the Blue Thumb programs?, (2) What are the measured and intended participant learning outcomes?, and (3) How do Blue Thumb educators employ experiential pedagogies to achieve these learning outcomes?

The study employed an explanatory sequential mixed methods design, with qualitative data being used to add contextual understanding to the quantitative data. Data was collected and analyzed in the summer of 2020. First, we conducted a program review of the BT annual reports to identify key program components and previous evaluations. Second, individual surveys were administered to the program director and regional education coordinators of the BT program (n=5) to identify learning outcomes and experiential pedagogies. Finally, a focus group with all BT educators provided an opportunity to review and formalize the evaluation objectives for the next phase of research, as well as gather qualitative examples of the experiential pedagogies and learning outcomes. Kolb’s theory of experiential learning guided our data analysis and review of BT Programs along three dimensions: anticipated learning outcomes, processes of the scientific inquiry, and types of participant involvement.
Results and Discussion

BT engages diverse audiences, from youth to seniors, in a range of learning contexts, from classrooms to land use management. For the volunteer monitoring program, BT ranked their top 3 participant learning outcomes as behavior and stewardship, motivation, and interest. However, evaluation to date has been limited and focused largely on changes in science content knowledge following training. For other BT programs, the level of participant involvement in terms of time and activity seemed to influence BT perceptions of number and breadth of participant learning outcomes. It is clear that some one-time activities are more challenging to evaluate. However, some activities hit the sweet spot of experiential learning, like the Enviroscape which engages learners in a model of how their actions contribute to nonpoint source pollution within a watershed. This explicit, visual, and hands-on demonstration has observable impacts on participants’ attitudes about conservation and stewardship. Examples of experiential pedagogies ranged from passive (e.g. videos or making fish prints) and to more active, place-based approaches (e.g. creek walks/clean-ups). There are 3 general types of participant experience: one-time visits, youth/public education, and volunteer monitoring. BT educators identified volunteer monitoring as the priority program. Along an annual timeline of involvement, volunteers engage in the complete Kolb Cycle inquiry cycle. The volunteer experience includes a sixteen-hour training, monthly monitoring, quarterly visits with BT, quality assurance testing, and annual volunteer-generated data reports. Qualitative reports from BT educators revealed examples of rich sense-making experiences and meaningful engagement with the environment. One educator describes, “There's always going to be one person [...] that suddenly you've opened doors for them and things that they realized that they didn't know that they wanted [...]And this is going to eventually turn into something for them.”

Conclusion and Significance

Guide by EL Theory, our research pilots a method of formative program review that accounts for different program pedagogies, contexts, and target audiences, while also building on a common citizen science evaluation framework (Phillips et. al, 2018). The findings will be applied to the next phase of evaluation to guide sampling methodology and inform the creation of a participant survey to assess the learning outcomes of volunteer monitors. While evaluation of participant learning outcomes is valuable, applying EL theories helps us to better understand how active learning and scientific inquiry happen in place-based and data-rich volunteer programs.

Indeed, learning by experience in the natural world is the foundation of modern scientific inquiry (Smith & Knapp, 2011). Future evaluation of citizen science will benefit from grounding research in established EL theories and pedagogy to answer key questions such as, (a) How can projects be improved by best practices in experiential learning?, (b) What psychological and physiological processes take place when doing citizen science?, and (c) What EL pedagogies align with different citizen science participant learning outcomes?

References


UNPACKING CONCEPTIONS OF CULTURALLY RESPONSIVE SERVICE LEARNING IN AN EE PROGRAM

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Purpose

This study aimed to explore students’ early trip conceptions of culturally responsive service learning (CRSL) in comparison with their end of trip conceptions while on a month-long EE program in rural Fiji. This study also aimed to understand which self-reported experiences facilitated the transformation of participant conceptions of this term. By understanding where participants begin on the journey of defining CRSL and conceptualizing service in communities, EE instructors can design learning experiences that meet the needs of students and provide opportunities to grow in practicing and conceptualizing CRSL or related terms. Furthermore, by understanding which self-reported experiences facilitated the transformation of thought, EE instructions can design programs with these types of experiences in mind to facilitate emergent critical consciousness (Freire, 1972).

Review of Literature

Much work has been done in experiential education around issues of social justice (e.g. Warren, 2019; Breuinig, 2019, Grain et al., 2019; Tinkler et al., 2019). To theorize how social justice manifests an EE program, both EE theory (Smith, Knapp, Seaman, & Pace, 2011) and critical pedagogy (Freire, 1972, 1994, 1997; Breunig, 2005, 2011) are necessary. Together, these theories strive to decolonize experiential education (Smith, 2012) through critical praxis and the experiential learning cycle, the problem-posing method of education, and conscientization (Breunig, 2011). Furthermore, EE theory and critical pedagogy rely on a postcolonial framework (Said, 1978; Bhabha, 1984; and Spivak, 1988). While service learning is one type of experiential education, not all service learning is social justice oriented (Tinkler et al., 2018). Mitchell (2008) linked the concepts of service learning and critical pedagogy to develop the concept of critical service learning. Research situated in critical service learning have both theorized and explained practical outcomes of contextualizing service learning from a critical lens (e.g. Porfilio & Hickman, 2011; Andrews & Leonard, 2018; Tinkler et al., 2018). community engagement” (p. 71).

Method

The data collection took place during a month-long summer elective EE program in rural Fiji in 2019 with 20 undergraduate participants. Each day, program participants engaged in a wide array of service learning projects as well as enrolled in a four unit teacher education elective course titled EDUC 592: Culturally Responsive Service Learning. Service learning projects were co-constructed alongside local field partners on a daily and weekly basis throughout the duration of the program. While this research study is a part of a larger data set, for this particular study, two questions from a reflective end of program interviews and the students’ composition notebooks were used to analyze the students’ conceptions of CRSL. The interview questions were:

1) What does culturally responsive service learning mean to you? What did it mean before this trip, and what does it mean now?

2) How did you learn what this means, and in what specific activities this month did you enact culturally responsive service learning this month?

With informed consent from each participant, the interviews were audio recorded. The interviews took place in our classroom during the final week of the EE program. The data was triangulated by carefully reviewing each participant’s definitions of CRSL in their composition notebook. During the interview, students used their early trip definitions and end of trip definitions to define the term and discuss the changes. Following the EE program, the interviews were transcribed, deidentified, and analyzed through a comprehensive data analysis process as outlined by Saldana (2016).

1 See Yomantas (2020) for more information on the theoretical and instructional design of the EE program.
Results
The data showed that participants’ early trip definitions of CRSL were situated in westernized notions of service. Their definitions included ideas about service being for the purpose of a resume builder in which they give something to someone in need without asking permission. Their definitions included terminology that both explicitly and implicitly had a hero mindset in which they would come into the community and solve a problem on behalf the community who is “in need.” Their definitions indicated that they believed modernization and westernization are the goals of CRSL. The data analysis revealed that all students’ new definitions relied heavily on relationships with local partners. Relationships were spoken about as a precursor and ongoing objective of CRSL. Participants indicated that building individual relationships as well as community relationships fostered great unity and oneness in the work they did. With relationships as a cornerstone for CRSL, the participant definitions revealed three categories for how CRSL should be done including: CRSL should be done from the posture of a learner; CRSL should yield mutual benefits; and CRSL should preserve and honor the host culture. In addition to the ways participants defined CRSL in their end of trip definitions, participants also demonstrated new ways of conceptualizing CRSL through emergent critical consciousness (Freire, 1972). The data revealed that participants developed new ways of conscious critical thinking, identifying their own deficit thinking, and making plans for how to apply new understandings in future contexts. The data revealed three main categories that students identified as formative experiences in their revised definition of CRSL. The three main experiences included assisting in a coconut copra, working in the local schools, and engaging with the local villages. In addition to these three main activities, participants also noted how they learned what CRSL is not.

Discussion & Implications
Because the students came from a wide variety of educational backgrounds, their early definitions of what it means to serve suggests that traditional notions of service are still widely spread in schools and society. If students are entering institutions of higher education with these ideas, a new question emerges: how can we reimagine EE programs in K-12 in order to address some of these ideas at an earlier age? By employing critical service learning, culturally responsive service learning, or a critical pedagogy lens in K-12 EE programs, perhaps over time the trend can change. Perhaps students can come into higher education with a critical lens of service or a humanized view of others from earlier EE programs that take place in K-12 education. By employing these ideas in K-12 education in developmentally appropriate ways, perhaps students will come into institutions of higher education with a foundation such as this. Furthermore, the opportunity for partnership in social justice oriented EE programs across K-12 and higher education is ripe for limitless possibility. In terms of teacher education, the findings from this study suggest that the ending of the EE program would be a rich starting point for clinical experience. This new framework for serving and learning would be the perfect springboard to launch into student teaching that is rooted in culturally responsive classroom practices, community engagement, and democratic, co-constructed teaching and learning alongside students. Because program participants developed the critical consciousness to identify bias and apply the concepts into new directions, the end of the EE program would be an ideal beginning for a cohort model of clinical practice. With these new understandings as a framework, teacher candidates alongside the same faculty member from the EE program could conceptualize new ways to employ the concepts in the local or home community.
References


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SOCIAL REGULATION IN OUTDOOR EXPERIENTIAL EDUCATION

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According Webb and Paliscar (1996), a collaborative learning group is a collection of learners “engaged in a common task who are interdependent in the performance of that task and interact in its pursuit” (p. 841). During collaborative learning activities, participants work collectively to search for meaning, gain understanding, find solutions, or create a tangible product (Smith & MacGregor, 1992). The use of collaborative learning activities is predicated on the assumption that students must be actively engaged in knowledge construction processes, and research suggests that students who learn together in small groups demonstrate higher academic motivation, achievement, and satisfaction than their peers working individually (e.g., Barkley, Cross, & Major, 2014).

While collaborative learning has the potential to influence students’ achievement, motivation, and satisfaction (Barkley et al., 2014), the effects of collaborative work often depend on how the group is organized, how tasks are assigned, characteristics of the students who participate, and how the group is held accountable for their learning. The challenges of working in collaborative groups are well documented in the education literature (e.g., Järvenoja, Volet, & Järvelä, 2013). Educational researchers have also examined how group processes and individual group members affect individual and group-level learning (e.g. Volet, Summers, & Thurman, 2009).

In the past two decades, there has been an increase in the number of studies examining socially shared regulation (Panadero & Järvelä, 2015). According to Hadwin and Oshige (2011), socially shared regulation refers to the process by which “multiple others regulate their collective activity” (p., 253). This framework recognizes that individuals have varied intrapersonal and interpersonal goals when they enter collaborative group interactions, and goals and standards are co-constructed during learning activities (Hadwin & Oshige, 2011). As such, group members must concurrently regulate themselves (e.g., “I need to ensure that I complete my portion of the project correctly”), their peers (e.g., “I need to help you monitor the accuracy of your work”), or work jointly (e.g., “we need to evaluate the completeness of our project”) to share regulatory responsibilities (Järvenoja et al., 2013).

Collaborative learning activities are a staple of outdoor adventure education (OAE) programming, and research has examined how group functioning and group dynamics impact student learning. For example, Goldenberg and Soule (2011) found that interpersonal interactions among group members helped NOLS students develop and reinforce personal values which increased their motivation to transfer course-related learning to other areas of their lives. Jostad (2015) explored the formation of social connections among group members on OAE courses and noted that students with higher social status in their respective groups reported higher cognitive (i.e., beliefs that one is a part of the group) and affective (i.e., interpersonal connection to other group members) connections with their groups. While research has examined the group dynamics occurring among participants in OAE courses, there is currently a lack of literature explicating how groups individually and collectively regulate the challenges they experience during collaborative group activities.

Methods

NOLS has been providing outdoor education courses for over 50 years, and a cornerstone of their programming is semester-length courses that run each spring and fall in both domestic and international locations. Participants in this study (n= 39) completed NOLS semesters, which ranged in length from 77-80 days, at either the NOLS Southwest, Patagonia, or New Zealand locations. Data were gathered using the NOLS Course Quality Survey (CQS), an online evaluation questionnaire completed by each student at the end of their semester. The two questions used to gather data for this study were added to the end of the standard CQS. The first question asked participants to identify the three greatest challenges they experienced during their semester, while the second question asked them how they navigated the previously identified challenges. Responses to each of these open-ended questions generated between a phrase and a paragraph of text, and each response was considered a unit of analysis. In total, participants
provided 92 unique responses to the first question and 68 responses to the second. Responses to each of the questions were openly coded using a descriptive coding process (Saldana, 2016). Identified codes were subsequently grouped into similar categories during the axial coding process (Saldana, 2016).

**Results**

The challenges experienced by NOLS semester students were coded into five distinct categories: interpersonal, self-regulation, physical, technical skills, and structural. Of these five categories, interpersonal challenges were cited most frequently (n= 73; 79%). The interpersonal challenges experienced by participants included group dynamic issues, interpersonal differences among group members (e.g., differing levels of maturity), communication challenges, conflict, differential abilities, and differential effort or engagement. The techniques used to overcome these challenges were subdivided into six categories: recruiting outside help, shared regulation, self-regulation, co-regulation, employing previously learned strategies or tools, and relying on prior experience. Overall, employing previously learned strategies or tools was the technique used most frequently by these participants (n=18; 26%) to manage encountered challenges, followed closely by shared regulation (n= 16; 24%). When dealing with interpersonal challenges in particular, a similar pattern emerged. Participants reported using previously learned strategies or tools (n= 17; 33%) and shared regulation (n= 14; 27%) to navigate interpersonal issues encountered during collaborative learning activities.

**Discussion**

The nature of the collaborative learning activities used during NOLS semester programming necessitates the use of various regulatory strategies, tools learned during course activities, and experience gained during participation to surmount encountered challenges. In this study, interpersonal difficulties were identified by participants as the most frequent challenge they experienced during their NOLS semester courses. To address these interpersonal challenges, participants employed various regulatory strategies. The most commonly utilized regulation technique was applying previously learned strategies or tools to the current challenge; for example, using a conflict resolution framework to address interpersonal conflict. While NOLS students were taught various communication skills, these situations were often the first instances where they had to enact the newly learned tool or technique. NOLS students also used socially shared regulatory processes, like discourse, to address interpersonal challenges. Discourse was used to co-construct a shared understanding of the problem, create shared knowledge, and then ultimately using this shared knowledge to address the problem(s) hindering collaboration. While both of these approaches enabled students to address challenging interpersonal situations, future research should explore in more detail how participants create shared problem spaces, co-construct understanding, and subsequently use that shared knowledge to navigate the hardships occurring amid the collaborative learning activities used during OAE programming. Moreover, it may be useful to see how the social regulation strategies learned during OAE experiences are applied by participants during interpersonal interactions at school and in work contexts beyond their OAE course.
References


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CANARIES AT THE CLIMBING WALL: A COMPARATIVE STUDY OF PARTICULATE MATTER AT TWO UNIVERSITY CLIMBING WALLS

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Chris A. B. Zajchowski, Old Dominion University,
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Magnesium alba – chalk – is regularly applied by indoor and outdoor climbers to their hands to reduce sweat while climbing in order to grip climbing holds. A limited scholarship has investigated the potential to be exposed to hazardous PM levels while climbing indoors. In 2016, 141 colleges and universities across the U.S. associated with the National Intramural and Recreational Sports Association [NIRSA] reported managing a climbing wall or indoor climbing facility (R. Guzman, personal communication, January 16, 2020).

Methods

Accordingly, we tested the potential for low cost, citizen science monitoring to illuminate sitespecific exposure to the potential for suspended chalk dust to lead to unhealthy levels of indoor particulate matter (PM$_{2.5}$ and PM$_{10}$) in two university climbing facilities. Dylos DC 1700 PM monitors were placed at central locations, either the staff climbing desk or wall opposite the climbing area, and data was collected for 10 days over two months. Both climbing facilities are markedly different in their design and age, this preliminary investigation aimed to assess whether the sites (i.e., University A vs. University B) might serve as a predictor for PM$_{2.5}$ and PM$_{10}$ exposure. Plans to expand the study throughout the US were thwarted by the pandemic.

Results

Findings revealed ‘good’ PM values at one university climbing facility and ‘unhealthy’ (PM$_{2.5}$) or ‘very unhealthy’ (PM$_{10}$) values at the other institution’s climbing wall (see Figure 1). Facility predicted over 60% of the variance in PM readings, and post-hoc tests revealed 75% of the variance in PM values at the second institution can be explained by open-climbing hours (see Table 1). These findings hold a variety of implications for future research and management of university climbing wall facilities to ensure the health of staff and their patrons.

In this study, we provide a glimpse into the range of PM exposure for climbers and climbing wall staff at two sample universities. A significant difference in PM was found across sites: University A featured ‘good’ air quality for both PM$_{2.5}$ and PM$_{10}$, while University B’s PM ranged from either ‘unhealthy’ (PM$_{2.5}$) to ‘very unhealthy’ (PM$_{10}$). And, while intra-site analyses illustrated the potential for variability in PM across sampling periods, the overall AQI category (i.e., good, unhealthy, very unhealthy) at both sites remained consistent.

![Figure 1. Logarithmic distribution of PM$_{2.5}$ and PM$_{10}$ µg/m$^3$ across August and October sampling periods.](image-url)
Table 1. 
*Means and Standard Deviations PM$_{2.5}$ and PM$_{10}\mu g/m^3$ across sampling periods with corresponding AQI class*

<table>
<thead>
<tr>
<th>Institution</th>
<th>Sample</th>
<th>n</th>
<th>PM$_{2.5}\mu g/m^3$ M</th>
<th>SD</th>
<th>PM$_{10}\mu g/m^3$ M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>University A</td>
<td>Aug.</td>
<td>1,182</td>
<td>3.96</td>
<td>1.35</td>
<td>11.30</td>
<td>4.14</td>
</tr>
<tr>
<td>University B</td>
<td>Aug.</td>
<td>1,161</td>
<td>59.90</td>
<td>15.00</td>
<td>415.33</td>
<td>139.30</td>
</tr>
<tr>
<td></td>
<td><em>Sept.</em></td>
<td>1,097</td>
<td>61.39</td>
<td>18.35</td>
<td>390.65</td>
<td>180.06</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1,187</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Good Unhealthy Very Unhealthy

*Instrument error during September sampling led to missing PM$_{2.5}$ data and unequal sampling amounts

**Discussion**

There are a variety of potential reasons for the difference in values across sites. First, air movement, ventilation, and air conditioning unit type can impact PM concentrations (e.g., Pacitto et al., 2019; Yu et al., 2009). University A’s climbing facility provides a potential diffusion of chalk dust through constant air movement between the climbing area and other activity areas (i.e., fitness). Conversely, University B’s facility features a climbing wall more enclosed. Second, University B features over three-times the climbing surface area of climbing as University A’s wall. Thus, it is possible that University B simply retains more deposited chalk dust on the available climbing surface (i.e., holds, panels, support beams). Third, irrespective of climbing surface area, differences in cleaning practices may have impacted PM. Rabinowitz and Frauman (2015) note that cleaning practices across university climbing walls can yield vastly different environmental conditions. Finally, the number of individuals using the rock walls or other fitness facilities (e.g., Castro et al., 2015), may impact the PM discovered at each university. One limitation of this study is the lack of use counts recorded at each wall, and future studies should examine this potential covariate.

More research is needed to understand the potential health effects of regular unhealthy exposure to PM, studies examining acute responses to MA exposure, an understanding of the long term health outcomes that may result from repeated exposure to airborne climbing chalk over months, years, and a lifetime is prudent.
References
AN EXPLORATORY ANALYSIS OF THE RELATIONSHIP BETWEEN OUTDOOR ADVENTURE RECREATION ACTIVITY TYPE AND ENVIRONMENTAL SELF-SELECTED STRATEGIES FOR HEALTH PROMOTION

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Studies show that spending time and participating in activities that take place in the natural environment, have the potential to develop positive effects both on physical and mental health (Park, Tsunetsugu, Kasetani, Kagawa, & Miyazaki, 2010; Pretty, Griffin, & Sellens, 2003; Pretty, Peacock, Sellens, & Griffin, 2005). In terms of physical health, a study by Park et al. (2010), found that as little as fifteen minutes in a natural environment can result in positive health outcomes, such as a lowering of blood pressure, cortisol, and heart rate. These effects were not equally observed in a city environment. On the contrary, exposure to noisy areas with a dense population has been found to negatively influence these same measurements (Beute & de Kort, 2014). Currently, the presence of stress and variables associated with stress and anxiety are of growing concern throughout society (Hansmann, Hug, & Seeland, 2007). This study examined the relationship between selected outdoor adventure recreation (OAR) activities and associated environmental self-selected health promotion strategies (ESS).

OAR is defined by (Ewert, 1985) “a self-initiated, non-consumptive recreational activity engaged in a natural outdoor setting, that contains real or perceived elements of risk in which the outcome is uncertain but influenced by the participant and/or circumstances” (p. 4). ESS are defined by Korpela, Hartig, Kaiser, and Fuhrer (2001) as personal behaviors, such as activities and visitation to selected locations (e.g., parks and other natural environments) for the deliberate acquisition of restorative and health-related outcomes such as reducing stress and enhancing a sense of wellness. This study considered motivations behind selection of specific activities and locations for OAR, more importantly how the activity and area affect health related outcomes. Health, in this study, is multifaceted by definition and pertains to physical and mental health.

Purpose and Significance

This study aimed to investigate the relationship between ESS motives to participate in several popular OAR activities (mountain biking, rock climbing, and whitewater paddling) and how these individuals understand their ESS of these activities influencing their personal health. This study adds to the existing literature surrounding the connection between health and OAR activities. It also provides additional insight on the topic of why individuals participate in specific locations; focusing on what about the OAR activity and the locations where these activities take place, provides perceived health benefits.

Methodology

The design of the study followed an explanatory, sequential mixed method design. Recruitment took a variety of forms, including in-person solicitation by the researcher to the potential participant at the area that the activity is performed, for example the climbing area (aka. crag), mountain bike trailhead, or white water put in. In-person solicitation also occurred at locations associated with the activity such as, campgrounds, restaurants and shops frequented by OAR participants in close proximity to areas containing OAR resources. Sample size was $N = 288$; 179 males, 102 females, 2 identified as other, and 3 non respondents for gender. Women comprised 31% of rock climbers, 27% of mountain bikers, and 34% of whitewater paddlers who completed the online survey.

The survey battery included, the Perceived Health Outcomes of Recreation Scale (Gómez, Hill, Zhu, & Freidt, 2016) with its three factors, (psychological experience (PSYC) prevention of worsening condition (PREV), and improved condition (IMPV)), the Perceived Health Competency Scale (PHCS)(Smith, Wallston, & Smith, 1995), and the Connection to Nature Scale (CNS)(Mayer & Frantz, 2004). The quantitative analysis of the survey instruments employed a MANOVA to consider the relationship between the three independent variables (rock climbing, mountain biking, and whitewater paddling) and the five dependent variables (instrument factors) listed above.
The qualitative data was from 33 semi-structured interviews: 13 mountain bikers (4 females and 9 males), 10 rock climbers (3 females and 7 males), and 10 whitewater paddlers (1 female and 9 males). These data were transcribed and analyzed using an open coding format. Data saturation was achieved when no new themes were identified in the data.

**Discussion of Findings**

Quantitative analysis found that mountain bikers reported significantly higher views that their participation prevented negative health outcomes such as diabetes, weight gain, heart attack, and illness. Rock climbers and mountain bikers connect their participation with health improvements, such as overall fitness, overall health, muscle strength and flexibility, more so than their whitewater boating counterparts. There were no significant findings associated with the other instruments in the study (CNS, PHCS, or PSYC), however high CNS means across activity type identified the importance that the natural environment has on participation.

*Fig. 1 OAR ESS Criteria for Participation*

Figure 1 shows reasons for participation in each of the OAR activities considered in the study and clearly shows support for the quantitative results. Specifically, that mountain biking and rock climbing participants are more motivated by physical health outcomes. However, mental health is also a reason for participation in all three activities. Several health reducing components were also identified in OAR participation including; travel and distance to the participation location, concern with possible injury, that the activity is hard on one’s body, and environmental concerns surrounding the location both in terms of natural hazards (i.e. falling rocks, dangerous rapids) as well as human impacts (i.e. pollution). Table 1 identifies primary reasons for participation for each OAR activity.

*Table 1. Primary Reasons for Participating by Activity*

<table>
<thead>
<tr>
<th>Mountain Biking</th>
<th>Whitewater Paddling</th>
<th>Rock Climbing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural Environment</td>
<td>Natural Environment</td>
<td>Social Group</td>
</tr>
<tr>
<td>Social Group</td>
<td>Social Group</td>
<td>Natural Environment</td>
</tr>
<tr>
<td>Physical Activity</td>
<td>Progression*</td>
<td>Novelty*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Items are ordered in terms of prevalence of theme*

Note *Reasons identified as something else by participants when asked to pick between physical activity, social group/sense of community, natural environment, or something else.*

This study further supports the restorative and rejuvenating effects of the natural experience as outlined in the attention restoration theory (Kaplan, 1995; Kaplan & Kaplan, 1989) with a focus on OAR, a less studied context for the theory. The theory of flow was also evident through these data and often connected with participants understanding of the mental health outcomes associated with their participation (Csikszentmihalyi, 1974).

Findings from this study have several implications and applications for OAR use as a health intervention as well as provides an outline of potential future research on these topics.
References


PERCEPTIONS OF THE BENEFITS AND EFFECTS OF A ROCK-CLIMBING WEEKEND FOR VETERANS AND THEIR FAMILIES

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There are currently over 20 million veterans in the United States (US) (U. S. Department of Veteran Affairs (VA), 2020). Of those veterans, over 2.8 million military personnel have been deployed on over 3 million tours of duty to Operation Enduring Freedom (War in Afghanistan), Operation Iraqi Freedom, and Operation New Dawn (War in Iraq) since 2001 (Smith, 2016; Institute of Medicine, 2010). Numbers of those wounded from those wars are well over 52,000, with physical injury, such as amputations, traumatic brain injuries, and spinal cord injuries. Additionally, the percentage of veterans being diagnosed with post-traumatic stress (PTS), adjustment disorder, military sexual trauma, and other debilitating damage to mind and body is increasing. In the US, estimates place the prevalence of PTS among soldiers returning from Afghanistan and Iraq anywhere from 20-50%, depending upon which study is examined. Of those veterans being redeployed, 40-50% report psychological problems (Smith, 2016). Besides PTS, the incidence of other common mental health problems include anxiety, depression, alcohol misuse, drug use disorders, and substance abuse. As a consequence of the physical disabilities and the psychological traumas sustained in war, there currently exists among veterans a high-level need for treatment and support. With these high rates of physical and psychological injury, and with only 50% of veterans seeking support from the VA, as well as the high rates of suicide (22/day in US) widely documented in returning combat and noncombat veterans (Coll, Weiss, & Metal, 2011; Smith, 2016; VA, 2020), the need to provide additional approaches to promote wellbeing and healing is compelling. The question that guided this inquiry is “what positive effects/benefits are gained from participation in a weekend rock climbing event for veterans?”

Review of the literature

In 2013, Caddick & Smith conducted a systematic review of key data bases and identified eleven relevant studies examining the positive impact of sport and physical activity on the well-being of combat veterans. Caddick & Smith (2014) found:

Sports and physical activity enhance subjective well-being in veterans through active coping and doing things again, PTSD symptom reduction, positive affective experience, and quality of life. Impact on psychological well-being includes determination and inner strength, focus on ability and broadening of horizons, identity and self-concept, activity in nature/ecotherapy, sense of achievement and accomplishment, and social well-being. Participating in sports and physical activity can also enhance motivation for living. (p.9)

Additionally, extensive research shows the health benefits of nature for physical and mental well-being. Being in nature reduces anger, fear, and stress and increases pleasant feelings. Exposure to nature not only makes people feel better emotionally, it contributes to their physical wellbeing (Selhub, E., & Logan, A., 2014; University of Minnesota, 2016). It has become more common for organizations to offer outdoor programming and nature experiences for veterans (Caddick & Smith, 2014; Dustin, Bricker, Negley, Brownlee, Schwab, & Lundberg, 2016) with the intention of positively contributing to their physical, social, emotional, and mental wellbeing.

Methods

The purpose of this study was to investigate perceptions of the effects and benefits gained from participation in a weekend rock climbing event for veterans and their family members. This pilot study utilized a constructivist, inquiry-based, qualitative approach. Veterans’ perceptions were obtained from a researcher-practitioner designed, IRB approved, interview protocol with 15 open-ended questions. The sample was drawn from foreign war veterans (including Korean, Vietnam, Persian Gulf, Afghanistan, and Iraq) across the branches of the military, who participated at least once in the event held annually since 2013. A 38.5% response rate was obtained from 39 veteran participants who were contacted via email and
cell phone. Fifteen respondents (13 identified as men, 2 as women) consented to participate in the first round of the primary researcher-conducted, recorded, phone interviews in September and October 2019. Transcriptions of the audio recordings were sent to participants via email for member checking, and upon return the transcriptions were analyzed using grounded theory, emergent coding.

**Results and Discussion**

Three primary themes emerged for the benefits/effects gained from participation in a weekend rock climbing event for veterans and their families. The first theme (with the highest frequency of comments) was the social wellbeing benefits/effects. Veterans shared extensively describing feelings of support, acceptance, and camaraderie, being able to relate to others through shared stories, and similar experiences from having served in the military. This theme of social wellbeing was aligned strongly with the literature examining therapeutic outcomes of outdoor recreation for veterans (Alger, 2016; Gilbert, Gilbert, Dawson, Beckmeyer, & McCormick, 2016; Green, Mogil, Buchanan, & Lester, 2016; Springer, 2016; Townsend & Gillette, 2016). The second theme that emerged was the psychological benefits/effects. With spirit uplifted, recharged veterans self-reported a more positive attitude and outlook, with increased motivation and a newfound desire to try new things, participate in other veterans’ programs, and volunteer to give back to serve others. This theme of psychological wellbeing aligns well with studies by Alger (2016), Springer (2016), and Townsend and Gillette (2016). The third theme that evolved was the physical wellbeing benefits gained. Self-reported data suggested that participation led to a renewed energy and desire to get back into sport, and to become more active, as was found in Caddick & Smith (2016), and Springer (2016).

**Conclusion**

There are tremendous wellbeing benefits that can be gained by those who participate in outdoor recreation and therapeutic programming for veterans and their families. Ultimately, proactive perspectives for the designers of events must include having a trauma-informed perspective and resources available when conducting adventure-based programming for veterans. To promote social wellbeing during events consider providing opportunities for relaxed, unstructured time for folks to share stories, such as BBQ’s or picnics shared together or evening time around the campfire. To promote psychological wellbeing, generate non-clinical settings, and leisurely relaxation through yard games like frisbee, bocce, or corn hole. In the pursuit of designing and providing high-quality programming for veterans, suggestions for future research could include examining whether the benefits and effects are similar/different for first-timers versus repeat participants. Future researchers may want to examine outcomes for participants based on self-reported identity (men, women, non-binary, LGBTQ) with attention to the most effective type of programming for the specific population being served, with an understanding of what obstacles veterans need to overcome to attend these events, as well as what support systems need to be in place to maximize positive outcomes.
References


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A LITERATURE REVIEW OF ADVENTURE THERAPY WITH LATINX YOUTH IN COMMUNITY-BASED SETTINGS: IMPLICATIONS FOR RESEARCH AND PRACTICE

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Background of the Literature
This project sought to critique and synthesize the current literature on adventure therapy with LatinX youth in community-based mental health settings (CBMHS), to highlight the lack of literature in this specific area. LatinX is a gender neutral term (Salinas & Lozano, 2019) that refers to people of Latin American descent. This study examines Latinx obtaining services in CBMHS in the United States. Evidence suggests 40% of Latinas/os have symptoms of high anxiety and depression, often related to discrimination, acculturation and lack of access to culturally adapted services (Corona et al., 2017). Though the LatinX community is in need of mental health services, they are less likely to utilize these services, in comparison to their white counterparts (Chang & Biegel, 2018). Most of the current modalities used in mental health treatment implicitly value mainstream European American culture that relies on individualistic perspectives rather than taking a collective perspective; this does not effectively engage LatinX clients in the treatment process (Arredondo, et al, 2014).

An experiential, asset-based intervention is needed that can meet both the mental health and cultural needs of this population; providing opportunities for voice and empowerment (Tucker et al., 2016). According to Norton, et al. (2012) the application of experiential education in therapeutic settings provides direct, hands-on adventure experiences that engage clients as active participants in the therapeutic process. AT is defined as the prescriptive use of adventure experiences provided by mental health professionals, often conducted in natural settings, that kinesthetically engage clients on cognitive, affective, and behavioral levels (Gass, Gillis & Russell, 2020).

By shedding light on existing limitations to mental health services for Latinx clients, and the need for culturally relevant and empowering interventions that move beyond Eurocentric models, this paper reviews current research that examines AT with LatinX clients in CBMHS, with the goal of highlighting promising practices, as well as identifying gaps in the body of knowledge and areas for future research and practice.

Methods
A literature review (Torraco, 2016) was implemented to review, critique, and synthesize representative literature on AT with LatinX clients in community-based health settings. This review was used to identify engagement of underserved young adults in community based mental health settings. A search was done on EBSCO platform using the following key terms, “adventure therapy” AND “community based mental health services,” with 122 results returned. Then, the word “adolescents” was included, and 34 results were received. After reading the abstracts, 5 were selected because they met the inclusion criteria. It is important to note that a search was conducted with the key term listed above AND included “Latinx” OR “Latinos” OR “Hispanics” OR “Chicanos” OR “Latinas” or “Mexican” which resulted in 0 matches. The inclusion criteria included the age of the participants, which ranged from adolescents to young adults, United States resident, and the receiving of outpatient treatment with a mental health provider at a community agency. From this search, four peer-reviewed empirical studies met the criteria and were analyzed; however, these interventions were not specifically targeting LatinX clients, but included them in their overall samples. Due to this lack of empirical data specific to AT with LatinX clients in CBMHS, this literature review also included additional sources of research that looked at other examples of culturally-adapted therapeutic outdoor programs with underrepresented populations in order to make recommendations for how AT can be adapted to specifically serve the LatinX population (Lekies, et al, 2015; Norton & Watt, 2014).

Results
In the four empirical studies that met the criteria for inclusion, there were a total of 1,272 AT participants in various community-based settings. All studies included LatinX clients in their samples; however, they
represented less than 2%. The lack of representation of LatinX clients in community-based AT research makes it hard to generalize the effectiveness of AT. Overall findings in these studies shows AT is a promising practice for addressing trauma symptoms and family functioning (Norton, et al, 2017), developing coping skills for stress management (Koperski et al., 2015); and improving youth psychosocial functioning and behavior (Tucker, et al, 2013; Vankanegan, et al, 2019).

More importantly, the additional studies shed light on promising practices such as research from Carter, et al, (2007) which challenged the deficit model by spotlighting preventative programs that embraced values and tradition of American Indian Youth in Project Venture. Carter suggests experiential approaches should continue to be examined for not only American Indian youth, but all underrepresented youth (p. 399). An additional study examined positive youth development models that promote authentic youth voices (Bowers et al., 2019). A further study spotlighted the need to focus more on AT with youth in CBMHS (Norton et al., 2014). Lastly, research suggested that in order to develop engagement, outdoor practitioners must provide not only activities, but also foster culturally relevant beliefs and attitudes about nature within the communities they are serving (Lekies et al., 2015).

Discussion
This study uncovered a profound gap in the research on AT with LatinX clients in CBMHS. This is largely due to underrepresentation in research samples, which is a direct result of underrepresentation in programming. Often people assume that underrepresented groups do not have socioeconomic access to these types of programs, and while that may be true in some cases, we also need to consider whether or not our AT interventions have been appropriately adapted to meet the cultural needs of diverse populations. Furthermore, this review sheds light on future implications for research and practice which include evidence of (Norton et al., 2014) the need for AT to move towards evidence-based practices. Similar to trauma-informed interventions, the studies included in this literature review highlight the need for a strengths-perspective in both practice and research. AT must continue to focus on training professionals in the field (Norton et al., 2014) in AT practices that are culturally relevant. As AT services become more accessible and culturally relevant, there will be more opportunities for research on the efficacy of community-based adventure therapy, the utilization of services and LatinX mental health. This research is particularly important to me as it intersects with my identity, as a POC social and behavioral science researcher.

Finally, researchers should start to consider a research track with the a potential start point of
1. A more diverse sample that includes the global majority, within the United States.
2. Further studies in CBMHS with this targeted population.
3. Alternatives to talk therapy for Latinx youth.
References


DEEPENING THE INSIDE: PRACTITIONERS’ REPRESENTATIONS OF THE UNDERLYING PROCESSES IN ADVENTURE EDUCATION AND THERAPY PROGRAMS IN ITALY

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The purpose of this investigation is to explore the underlying processes in Adventure Education (AE) and Adventure Therapy (AT) programs in Italy (for a problematization of AE and AT sector in Italy: Gigli, Melotti & Borelli, 2020). Although worldwide extensive research has been carried out on the outcomes of these programs, little attention has been paid to the underlying processes that make them work (Davidson, 2001; Wichmann, 1991). This study aims to contribute to filling this gap, through a qualitative investigation of practitioners’ representations.

Review of Literature

The existing literature on AE and AT is extensive and has confirmed the effectiveness of these programs. Several meta-analysis and systematic literature reviews (Bowen & Neill, 2013; Cason & Gillis, 1994; Coalter et al., 2010; Gill, 2014; Gillis & Speelman, 2008; Hans, 2000; Hattie et al., 1997; Morris, 2003; Muñoz, 2009; Neill, 2008; Neill & Richards, 1998; Rickinson et al., 2004; Stott et al., 2015) have summarized the results of the huge number of studies that have demonstrated the efficacy of AE and AT programs, outlining their effects, especially on: self-esteem, self-concept, self-efficacy, personality, behavior, academic outcomes, environmental atmosphere, physical conditions, and group dynamics (interpersonal, cohesion, effectiveness).

There remains an important aspect about which relatively little is known: there is a need for exploring the underlying processes of adventure experiences (Davidson, 2001; Wichmann, 1991). Many “compare the impact of the wilderness experience to electricity; we know it works but we are not sure why” (Kimball, 1979, as cited in Wichmann, 1991, p. 43). Thus, the aim of the present research is to investigate the underlying processes that make AE and AT programs effective.

Method

A qualitative-phenomenological research framework was chosen with the purpose of deepening the how and the why. In order to capture the complexities and the facets of adventure programs, a multiple case-study approach (Yin, 2018) has been adopted. Semi-structured focus group interviews were used to gain a detailed understanding of practitioners’ representations of the underlying processes of AE and AT programs.

Participants were recruited through the results of a mapping research on the spread of AE and AT programs throughout Italy (Melotti, Gigli & Borelli, 2020). We interviewed six different teams, who are working in diverse AE and AT programs (e.g. trekking, climbing, sailing…) with groups of people who are socially marginalized (e.g. adolescents from residential child-care centers, adults with mental disability, people from drug rehabilitation centers…). Each focus group session had a duration of two to three hours and was conducted by three researchers (one coordinator and two observers), starting from twelve questions defined in advance. Four of the six focus group interviews had to take place online (using Jitsi Meet software), due to Covid-19 restrictions.

The transcripts of the conversations were later examined through a mixed method analysis: on one side, a quantitative correspondence analysis was carried out using T-lab Plus software; on the other side, a qualitative “paper and pencil” content analysis was conducted. The content analysis was made with an inductive coding approach, through two cycles of coding (Saldaña, 2009): Initial Coding and Focused Coding methods (Charmaz, 2006) were used respectively for the first and the second cycle. The codebook was built and discussed by the whole team of researchers; the analysis made by one researcher was randomly checked by the other two, with a high degree of agreement.
Results

Interestingly, the two different analysis brought up coherent results. The main 100 words were placed on a factorial plan by Tlab Plus correspondence analysis: the disposition of the words in the quadrants made us identify four different topics (corresponding to the four quadrants) and two macro-areas (corresponding to the left and right side of the diagram). Coherently, the topics that emerged during the coding inductive process are groupable under the same two macro-areas: on one side the pedagogical tools and on the other side the conditions, identified by practitioners as necessary to make AE and AT programs effective (see Table 2).

Table 2. Codes frequency in each focus group interview and globally

<table>
<thead>
<tr>
<th>Pedagogical tools</th>
<th>F01</th>
<th>F02</th>
<th>F03</th>
<th>F04</th>
<th>F05</th>
<th>F06</th>
<th>TOT</th>
</tr>
</thead>
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<tr>
<td>Group, relationships</td>
<td>11</td>
<td>17</td>
<td>6</td>
<td>9</td>
<td>2</td>
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<td>58</td>
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<tr>
<td>Extraordinary experience</td>
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<td>12</td>
<td>12</td>
<td>5</td>
<td>3</td>
<td>54</td>
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<tr>
<td>Corporeality</td>
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<td>3</td>
<td>2</td>
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<td>21</td>
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<tr>
<td>Concrete/real experience</td>
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<td>9</td>
<td>6</td>
<td>6</td>
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<td>Nature as challenging context</td>
<td>7</td>
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<td>5</td>
<td>8</td>
<td>4</td>
<td>3</td>
<td>32</td>
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<tr>
<td>Nature as sublime/emotional context</td>
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<td>4</td>
<td>2</td>
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<td>4</td>
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<tr>
<td>Practitioners’ passion</td>
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<td>10</td>
<td>11</td>
<td>0</td>
<td>8</td>
<td>4</td>
<td>38</td>
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<tr>
<td>Deinstitutionalization of roles</td>
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<td>15</td>
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<td>1</td>
<td>1</td>
<td>29</td>
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<tr>
<td>Metaphoric processes</td>
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<td>0</td>
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<td>0</td>
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<table>
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<th>F03</th>
<th>F04</th>
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<th>F06</th>
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<td>3</td>
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<td>1</td>
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</table>

Discussion

This study set out with the aim to examine AE and AT programs in depth, in order to bring out some of the underlying processes that contribute to make them effective. The chance of being in a group and to work on relationships; the fact that these experiences are extraordinary, concrete and involve the whole body; being immerged in wild natural contexts, which are both challenging and emotional; practitioners’ passion for nature and for these programs, together with the deinstitutionalization and deconstruction of roles (i.e. educator vs. participant; therapist vs. patient); and the metaphoric processes that might take place between experiences in nature and personal lives; all these aspects contribute to make these programs emotional, effective, and meaningful, according to the interviewed practitioners.

There is often awareness amongst practitioners regarding the necessity of having strong and clear planning strategies and evaluation tools, but most of the interviewed teams still need to implement them. Concerns were expressed about the organizational, bureaucratic and economic aspects; participants all agreed about the difficulties in facing these issues and their repercussions on the quality of their work. A common view amongst participants was that if AE and AT programs were more widely acknowledged in Italy, there would be better conditions to implement them and make them more effective.

The results need to be interpreted within the characteristics of the Italian context. Despite the presence of a number of experiences in the field of AE and AT since the 1970s, research studies on the topic are still rare,
the relevance of the programs is not yet acknowledged, and the funding is rather limited. Therefore, this sector in Italy might be considered “under construction”. Intriguing questions regarding the nature and extent of the underlying processes were raised by these preliminary findings and are worth examining through further reflections and research.

References


RECLAIMING CONTROL IN THE VERTICAL REALM: A PHENOMENOLOGICAL STUDY OF FEMALE ROCK CLIMBERS WITH MENTAL ILLNESS

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Introduction and Literature Review

National Alliance on Mental Illness (NAMI, 2019) states that one in five adults in the United States experience some kind of mental illness each year. Although women and men both experience mental illness, women are reportedly twice as likely to experience generalized anxiety disorder or depression, according to the American Psychiatric Association (2017). Currently, the most widely used methods of treatment include psychotherapy, medication, support groups, complementary or alternative medicine, and hospitalization (Mental Health America, 2019). Alternative interventions, such as those utilizing exercise and outdoor experiential education, have increased in number recently and their use has been expanded for both populations, especially groups of women (Mizock, 2019).

As outdoor rock climbing participation in general has increased in the United States, so has the number of women interested in the outdoor sport. Numerous female-specific rock climbing events have provided opportunities for many women to be introduced to the world of adventure and challenge (Phillips, 2017). Women participants and guides have described feelings of empowerment as central to their experience in outdoor or adventure therapy, along with an increase in self-efficacy, resiliency, and confidence (Karoff et al., 2019). Linking the well-researched benefits of exercise, the natural environment, and experiential/adventure education as they apply to those experiencing mental illness seems only natural. Moreover, it can be argued that utilizing exercise in the outdoor setting as a form of therapy would be likely to elicit positive effects on those who experience mental illness and increase well-being as well as provide opportunities for reflection and leadership development. (Fruhauf et al., 2016).

As of today, the majority of studies addressing mental illness among women have explored the impact of traditional therapeutic options such as cognitive-behavioral therapy and other more broadly known methods of treatment. This phenomenological study sought to explore new insight on how rock climbing may influence women with mental illness by examining 9 female rock climbers’ experiences with anxiety disorders and/or depression in qualitative interviews.

Methodology

For this qualitative phenomenological study, a convenience sample of 9 female rock climbers who self-identified as experiencing or have experienced mental illness were recruited through announcement via the researchers’ social media accounts as well as through the organization WyoClimbers, of which the researcher serves as secretary. The term ‘female’, for the purposes of this study, included those who identified as women, but did not required the participant to be cisgender. The age range of participants was 22-37, including 7 self-identifying as Caucasian, 1 Asian, and 1 Hispanic/Latinx woman with rock climbing experience ranging from 5-22 years. The interviews were audio-taped and later transcribed along with the analytical memos. Data analysis included a coding methodology to explore common themes using a text-based manual approach (Saldaña, 2013). Qualitative coding involved the researcher assigning a code (a word, few words, or a phrase) “a summative, salient, essence-capturing, and/or evocative attribute for a portion of language-based … data” (Saldaña, 2013, p. 3). A rich thematic description of the entire data was utilized to identify important themes instead of a distinct account of one particular theme. This kind of thematic analysis is generally used while investigating an “under-researched area or with participants whose views on the topic are not known” (Braun & Clarke, 2006). Further, driven by data, themes or patterns were identified in an inductive manner or a ‘bottom up’ way (Braun & Clarke, 2006). The validity of the results were member checked by two participants to confirm the accuracy of the results and their analyses.

Results

This study explored numerous ways in which rock climbing assisted with self-identified females living with mental illness increase their self-determination, self-efficacy, resiliency, and locus of control.
Additionally, these interviews discussed the participants’ experiences with trauma, mental illness, treatment, familial and sexual abuse, and the climbing community. The qualitative interviews aimed to explore several themes in the experiences of female rock climbers with a history of or currently experiencing mental illness (anxiety disorders and/or depression) to achieve its goal of investigating the everyday experiences of this population. As a phenomenological study, participants were encouraged to explore behaviors, various perspectives, experiences, and beliefs to examine complexities of life experiences and its relation to their mental health as well as rock climbing (Khan, 2014). This study also sought to illuminate on the ways in which rock climbing has strengthened their sense of control and ways it has transferred to their general psychological and physical well-being.

Of the 9 participants interviewed: 7 have experienced sexual-assault in their lifetime; 5 described symptoms of post-traumatic stress disorder; 9 stated to have experienced depression; and 9 self-labeled having a history of anxiety. Four rich themes, each with distinct categories emerged further expounding on the respective topic: (a) **Background factors** (family, gender, and trauma); (b) **mental health** (mental illness & treatment); (c) **climbing and general well-being** (climbing community, emotional qualities of rock climbing, physical qualities of rock climbing, & outdoors), and; (d) **strengths, perseverance, and moving forward** (self-determination, self-efficacy, resiliency, & locus of control). Participant responses especially shed light on the ways in which the sport and community of rock climbing provides them with structure and support that enhances their well-being in everyday life, and the power of control experienced in the sport.

This study seeks to explore the effects of rock climbing on women with a history of or currently experiencing mental illness, specifically anxiety disorders and depression. Although each participant’s history with these illnesses were unique, it is clear that rock climbing played a significant role in recovery and/or coping. One participant even described that “it was 100% climbing that pulled me out of that deep dark hole” when explaining her recovery from a depressive episode. In each interview, experiences with mental illness and treatment were discussed at length to gain an in-depth understanding of each woman’s personal struggles and triumphs in working through symptoms and ways this allowed them to critically reflect.

**Discussion**

The findings highlight the ways that rock climbing as a sport, community, and outdoor experience positively affects women currently experiencing or with a history of mental illness (specifically anxiety & depression). This exploratory study thus depicts the experiences of the participants, especially the ways rock climbing has had immeasurable positive impacts on their lives, well-being, and inner-strength. All participants described the various ways the sport provided immense growth in ways that could apply to other areas of their lives.
References


THE INTENTIONAL PRACTICES OF ADVENTURE THERAPY FACILITATORS

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Review of Literature

As more research validates the evidence supporting adventure-based programs, adventure pedagogy is being increasingly used to promote the healthy development of individuals and groups of all ages (Tucker & Norton, 2013; Warren et al., 2014). Newman et al. (2018), characterized adventure pedagogy as “a participant-centered approach consisting of intentionally designed and sequenced challenging group experiences, which when processed and debriefed, can lead to shared opportunities for growth and development” (p. 281). Grounded in adventure pedagogy, adventure therapy (AT) is “any intentional, facilitated use of adventure tools and techniques to guide personal change toward desired therapeutic goals” (Alvarez & Stauffer, 2001, p. 87). AT settings are diverse and range from adventure-based group therapy to wilderness therapy. However, due to the complex and diverse nature of AT, the specific practices associated with AT facilitation can be unclear (Tucker & Rheingold, 2011). So much so that within AT scholarship, the practices of facilitators is often referred to as a blackbox (Ferne et al., 2016). Several models have been developed as a way to theorize the practices of AT facilitators as they support the development of their clients. One model is the Facilitated Wave Model (Alvarez et al., 2020), which consists of five distinct, yet interconnected processes that guide the practices of AT facilitators. Processes include: 1) Assess Point A (e.g., client history), environmental conditions, and Point B (therapeutic goals); 2) Match interventions with your assessment of client needs; 3) Shape environmental conditions; 4) Facilitate experience; and 5) Evaluate the process. In the current study, the Facilitated Wave Model was used as the guiding framework to unpack the blackbox and explore the intentional practices of AT facilitators.

Method

Procedures & Participants

Participants were recruited through the Association of Experiential Education’s Therapeutic Adventure Professionals Group (TAPG) and the Outdoor Behavioral Healthcare (OBH) Center email listservs and social media accounts. Self-identified inclusion criteria included: 1) Trained to use adventure- and/or wilderness-based therapeutic skills; 2) Currently or previously provided direct therapeutic care to individuals and/or groups; and 3) Currently or previously worked in an adventure and/or wilderness therapy setting. In total, 16 AT facilitators participated in the current study, including 11 males and 5 females with an average age of 40.7. The majority of AT facilitators were white/Caucasian; however, participants practiced in eight different countries (e.g., United States, United Kingdom, Israel, Australia). Additionally, eight participants were licensed in their respective profession, which included social work, psychology, outdoor education, and sports science.

Data Collection & Data Analysis

Participants engaged in one one-on-one semi-structured interview that consisted of ten main questions and related probing questions. Questions were designed to explore the five processes of the Facilitated Wave Model. Examples of interview questions include “How do you
assess an individual or group that you are working with?” As outlined by Braun and Clarke (2006), a hybrid inductive-deductive thematic analysis was used to analyze the interview data. Specifically, initial codes were inductively generated, individual codes were deductively organized into categories that represent the five processes of the Facilitated Wave Model. Within each process, themes and subthemes were inductively constructed from the data.

Results
Findings help to illustrate the range of practices used by AT facilitators when working with clients. Related to assessment, findings reveal AT facilitators initially assess client(s) themselves, as well as use external assessments from outside evaluations. Further, participants stated that assessment is an ongoing process. Data highlighted the importance of matching for both client needs and also how to plan individual activities for clients. The ability to shape the environment related to being cognizant of the physical environment, developing group norms, and establishing a therapeutic relationship. Participants also discussed strategies and approaches to facilitate. These included having flexibility in the moment, using specific techniques, processing the experience, and providing closure. Finally, data indicated that AT facilitators evaluate both the clinical goals of clients, and also the effectiveness of their own facilitation.

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Discussion
As a way to begin to unpack the blackbox, findings from the current study both identify and describe the intentional practices of AT facilitators. By more clearly understanding not only what but also how AT facilitators actually facilitate, research is better positioned to examine how specific AT practices impact client outcomes. Further, findings have the potential to inform the education and training of AT facilitators so that they can be more effective when promoting the healthy development and wellbeing of clients.
References
TRAUMA-INFORMED ADVENTURE BASED COUNSELING: A PROMISING APPROACH FOR INFLUENCING DEVELOPMENTAL OUTCOMES FOR YOUTH

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As awareness of childhood trauma and adversity grow, multi-modal interventions addressing biopsychosocial effects of trauma are vital (Courtois, 2008). Adventure Based Counseling (ABC)—an experiential group-based intervention using novelty, disequilibrium, and collaborative activities—has been suggested to promote resilience in youth (Green, Kleiber, & Tarrant, 2000), yet no trauma-informed model of ABC exists in the extant literature. The purpose of this exploratory study was to investigate the utility of ABC to promote resilience in adolescents, specifically through a reduction in trauma-related symptoms (e.g. depression or dissociation), youth and nonparental caregiver attachment, relationships between youth and peers, and improvements in adolescents’ body-mind connection. Informed by postpositivism (Henderson, 2011), this research contributes to the literature on outcomes associated with adventure programming, while also suggesting mechanisms making those outcomes attainable (McKenzie, 2000).

Review of Literature

For youth experiencing significant trauma, adventure programming can be an experiential approach to re-engaging in life through connection with peers (Norton et al., 2017). The most frequently measured ABC outcome is self-esteem, and the greatest effect sizes of this intervention occur when implemented with a therapeutic or developmental approach, most impacting family functioning (Gillis & Speelman, 2008). Research on resiliency development in low-income minority youth as a result of participation in adventure-based recreation suggests components of this intervention (e.g., processing, goal setting, and skill building) cultivate protective factors (Green et al., 2000). Attachment research on youth in out-of-home placements (e.g., residential treatment and group living settings) suggests attachment grows through staff-client interactions and individualized treatment (Moses, 2000), but little research has investigated changes in attachment through a shared adventure experience. As trauma practitioners continue to identify and adapt programming to address trauma effects, more focus is being given to the embodied cognitive, physical, and biological impacts, and how treatment must address those realms (Van der Kolk, 2015). Similar body-mind connections have been proposed during high risk activities (Bailey, Johann, & Kang, 2017), yet adventure-based modalities have not garnered the same support in promoting neuroplasticity as yoga and mindfulness, which can be challenging to implement with youth with diminished capacity for sustained attention due to trauma (Abrams, 2008).

Method

A nonexperimental design was used within ongoing ABC programming consisting of weekly group initiatives with two intervention groups (Residential Foster Care and Day Treatment). A convenience sample of 29 youth ages 10-18, who participated in a semester-long ABC curriculum and culminating ropes course experience, completed pre-and-post program questionnaires providing quantitative and qualitative data. This study received IRB approval through Clemson University and the agency CEO provided organizational support. Measures included The Child PTSD Symptom Scale for DSM-5 (CPSS-5) Screener, a modified Inventory of Parent and Peer Attachment (IPPA) for Children called the Inventory of Staff and Participant Attachment (ISPA), the Group Climate Measure (GCM), and the Scale of Body Connection (SBC). Two trauma theory-based open-ended questions were added to each of the post-program scales, providing qualitative data analyzed using directed content analysis (Hsieh & Shannon, 2005). Qualitative responses were coded by the researcher and independently audited by faculty.

Results

Of the 29 study participants, the average age was 13.8 years old, and the majority of respondents were female (63.6%); white/Caucasian (50%); not of Spanish, Hispanic, or Latinx ethnicity (81.8%); and receiving residential foster care service (77.3%). Based on a review of the normality of the data, it was
determined that nonparametric tests would be most appropriate for all research variables. Using the exact sign test, no statistically significant changes were measured between pre-test and post-test scores (CPSS-5 p=.556; ISPA Trust p=.210; ISPA Communication p=.248; ISPA Alienation p=.556; GCM Group Cohesion p=.359; GCM Engagement p=.134; GCM Mutual Help p=.152; SBC Awareness p=1.00; SBC Dissociation p=.690), while a Mann Whitney U test was used to compare change in ISPA and GCM scores between youth in the two programs, and again no statistically significant difference was found. In response to the open-ended questions, the majority of respondents described complex trauma as what was most bothersome (44.8% pre; 43.8% post), yet multiple responses described significant stress anticipating the ropes course (24.1% pre; 12.5% post). Across the six open-ended questions, multiple youth reflected on their experience, stating they did not complete the entire course. Stress-threat balance presented by the ropes course helped with change in trauma symptoms for 27.6% of respondents. Stronger bonding with their staff (“made my connection with them stronger”) was indicated by 26.7% of respondents, while 10% implied that their relationship was already strong. Deeper trust (“you have to trust staff at times like that”) was suggested by 20.7% as a mechanism driving attachment changes. On peer relationships, 20.7% suggested a closer relationship with their peers (“I feel like I have realized that we are all better as a group/team than not”), facilitated by mechanisms of mutual support (20.7%) and bonding (6.9%). Empowerment, important for achieving outcomes (Sibthorp, Paisley, & Gookin, 2007), was also a noted change in the Scale of Body Connection qualitative questions (13.8%), supported by mechanisms of physical awareness (13.8%) and challenge by choice (13.8%).

Discussion

This study produced mixed findings. The quantitative tests provided no statistically significant change—consistent with previous studies (West & Crompton, 2001). Alternatively, qualitative findings support prior research connecting the fields of adventure education and resilience. Reflections on not completing the course reinforces the need to reference core concepts like Challenge by Choice, and also highlights the need to promote learning from both perceived success and failures to support neuroplasticity and higher order cognitive skills (McKenzie, 2000; Roberts, 2002). The combined measures chosen made for a lengthy questionnaire, producing high respondent fatigue, evidenced by 193 instances of missing data that required mean imputation as well as 5.4% blank or brief responses to open-ended questions (Rolstad, Adler, & Rydén, 2011). The major study limitation was the small sample size (n=29) and subsequent need for nonparametric tests (Faber & Fonseca, 2014). Nonsignificant findings could be a result of anticipation bias and response-shift bias—suspected for nonsignificant data in adventure research (Overholt & Ewert, 2015)—evidenced by course-related fear, rather than something related to complex trauma, as what is most bothersome. Future research should include retrospective pretest designs, including a social desirability scale to mitigate biased reporting (Sibthorp et al., 2007). Mixed methods approaches—including participant and methodological triangulation, such as staff surveys—and a quasi-experimental design, may be valuable for improving the validity of study findings (Rossi, Lipsey, & Henry, 2019).
References


