Abstracts from the Coalition for Education in the Outdoors 17th Biennial Research Symposium

YMCA Blue Ridge Assembly Black Mountain,
North Carolina
February 6-8, 2026

Compiled and Edited by:
W. Brad Faircloth, UNC-Asheville
Andrew J. Bobilya, Western Carolina University
Brad Daniel, 2nd Nature TREC (Training, Research, Education, Consulting)

State University of New York College at Cortland
P.O. Box 2000
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Preface

Welcome to the 17th Biennial Coalition for Education in the Outdoors (CEO) Research Symposium. Whether you are using this compilation as an attendee or reading it after the event, we are glad to include you in the work of the Coalition. CEO was established in 1987 at the State University of New York (SUNY) at Cortland by a group of outdoor educators from around the United States. It served as a network of organizations, businesses, institutions, centers, agencies, and associations linked and communicating in support of the broad purpose of education in, for, and about the outdoors. The founders of CEO envisioned it could play an important role in addressing the research needs of the field. In its early years, the CEO formed a research committee, which led to the organization of these biennial research symposia and the refereed publication, *Research in Outdoor Education,* which is available open source via SUNY Cortland at the CEO website. Indiana University's Bradford Woods was chosen as the site of the first symposium in 1992 and hosted the event through 2018.

The *Journal of Outdoor Recreation, Education, and Leadership (JOREL)* will again publish a Special Issue in late 2026 focusing on the 17th Biennial CEO Symposium. The symposium aims to assist outdoor educators in advancing the philosophical, theoretical, and empirical bases of outdoor education through several ways. First, the symposium enables scholars to present their work to one another and to others in the field. Second, the symposium fosters conversation and builds a community among researchers in outdoor education. Third, the symposium provides a forum to address areas of new or ongoing concern to researchers and scholars in outdoor education.

Thirty-four years after its inaugural meeting, the purpose of the CEO Research Symposium has remained the same. Fortunately, the event is still not too large and retains the informal and highly interactive atmosphere that people valued from the start. It attracts scholars and practitioners from a wide variety of academic disciplines and outdoor education professional settings. It has maintained a loyal attendance drawing researchers from across the country and around the world eager to discuss a diversity of topics.

Pete Allison (Penn State University), Jamie Brunsdon (University of Memphis), and Paul Stonehouse (Western Carolina University) will host a pre-symposium session focused on Character Education and Outdoor Education. Finally, we are pleased to announce the recipient of the CEO Graduate Student Research Scholarship: Becky Schnekser (Prescott College) was chosen from accepted abstracts with a graduate student lead author. This scholarship was funded by donations collected at the 2024 symposium. A similar donation opportunity will be held at this symposium.

We owe thanks to many people who make this event possible. The authors are the ones who bring this program to life. Andrew Bobilya (Western Carolina University & 2nd Nature TREC), Brad Daniel (2nd Nature TREC), Brad Faircloth (University of North Carolina-Asheville & 2nd Nature TREC), Amy Direnzo (SUNY Cortland), Pete Allison (Penn State University) and members of the Research Committee helped organize and facilitate the program. The 2nd Nature TREC team and the Research Committee (also assisted by others) coordinated the review of abstracts. Finally, our thanks go to SUNY Cortland President, Erik Bitterbaum, and Provost, Ann McClellan, for their continued support of the Coalition for Education in the Outdoors.

Amy Direnzo & Andrew Bobilya for the CEO Research Committee

Coalition for Education in the Outdoors Research Committee

Dear 2026 CEO Research Symposium Attendees,

On behalf of 2nd Nature TREC (Training, Research, Education, Consulting), we welcome you to the 2026 Coalition for Education in the Outdoors Research Symposium! We are excited to be together again and hope that you enjoy your time at the beautiful YMCA Blue Ridge Assembly Conference Center and celebrate their reconstruction efforts following Hurricane Helene which devastated the YMCA's property on September 27, 2024. We hope you will take time during your stay to browse the interpretive signage which tells the story of the hurricane's impact on the property and its buildings. This location is close to Mt. Mitchell, the highest point east of the Mississippi River (6,684 feet), the Blue Ridge Escarpment (where the mountains drop 1400 feet to give way to the Piedmont), the Great Smoky Mountains National Park, several wilderness areas (Linville Gorge, Shining Rock, Middle Prong, Joyce Kilmer-Slick Rock), and numerous whitewater rivers (Nantahala, French Broad, Chattooga, Ocoee, Nolichucky). While here, we hope you take the time to get out, go for a hike, and enjoy the beauty winter has to offer.

Sincerely,
Brad Daniel, *Executive Director*
Andrew J. Bobilya, *Director of Training and Education*
Brad Faircloth, *Director of Research*

Description of the Pre-Symposium Session

Character Education and Outdoor Education

Facilitated by Pete Allison (Penn State University), Jamie Brunsdon (University of Memphis) & Paul Stonehouse (Western Carolina University)

Character has a long history in outdoor education. – sometimes contested, sometimes popular, sometimes unpopular! Character has also been used in a wide range of meanings and morphed into different terms to fit a variety of socio-political and cultural contexts. Terms such as personal and social development, personal, social and emotional learning, and non-cognitive skills are just a few examples.
Kurt Hahn, one of the founders of outdoor education, was committed to influencing character in young people and saw it as a moral responsibility of those involved in education (formal and non-formal) in large part because he was concerned about the decline of civic society and wider trends of international peace, or otherwise, between countries.

Notwithstanding semantics of terminology, it is abundantly clear that character, or components of it, is essential and has gained increasing attention in the last decade. The popularity of Angela Duckworth's work on Grit, Carol Dweck's work on Mindsets and David Brook's book, The Second Mountain are all examples of a growing interest in different forms of character.

In the UK the Jubilee Center for Character and Virtue have led over the last 15 years significant developments in both theory, policy and educational practices in Character Education. Similarly, Wake Forest's Educating Character Initiative (ECI) has grown at an exponential rate.

This pre-symposium session will provide an overview of current conceptual approaches to character education and recent research. One example that will be detailed is a recent four-year study of Outward Bound as a Character Building Organization emphasizing cross cultural approaches, similarities and differences (supported by the John Templeton Foundation). The session will provide ample opportunity for dialogue around character, character education outdoors and potential implications for research and practice.

2026 CEO Research Symposium Schedule

Thursday, February 5, 2026

3:30 p.m. – 5:30 p.m. Thursday Night Arrivals/ Pre-Symposium Session Registration Check-in at YMCA Blue Ridge Assembly – *Blue Ridge Center Lobby*
*Late arrivals can check in and receive lodging key at registration desk in lobby
**Note: There is no CEO programming or meal service on Thursday evening at the YMCA. Early arrivals are encouraged to enjoy the YMCA property and the nearby towns of Black Mountain, Old Fort, Swannanoa and Asheville

Friday, February 6, 2026

8:00 – 8:45 a.m. Continental Breakfast for Thursday Night Guests – *Blue Ridge Center Robertson Room 2*

8:00 – 9:00 a.m. Pre-Symposium Session Registration Check-in at YMCA Blue Ridge Assembly *Blue Ridge Center Lobby*

8:30 a.m. – 12:30 p.m. YMCA Mountaintop Café and Gift Shop Open (near lobby)

9:00 a.m. – 1:00 p.m. **Pre-Symposium Session "Character Education and Outdoor Education"** facilitated by Pete Allison (Penn State University), Jamie Brunsdon (University of Memphis) & Paul Stonehouse (Western Carolina University) – *Blue Ridge Center Robertson Room 2*
*Boxed Lunch provided for Pre-Symposium Session Attendees – *Blue Ridge Center Robertson Room 2*

8:00 a.m. – 1:45 p.m. Symposium/Lodging Registration Check-in at YMCA Blue Ridge Assembly –*Blue Ridge Center Lobby* (after 1:45 pm, symposium registration will be in *Blue Ridge Center Y Alumni Room*)

2:00 **Symposium Opening Session – *Blue Ridge Center Y Alumni Room***
Welcome – *2nd Nature TREC and CEO Research Committee*
Connection Activities – *Brent Bell, UNH* YMCA Welcome & Site Logistics – *YMCA Staff & 2nd Nature TREC* CEO Background – *Amy Direnzo, CEO Research Committee*
Symposium Overview *2nd Nature TREC*

3:00 **Keynote Address: "Toward a Pedagogy of Rewilding: A Neo-Aristotelian Interpretation of Outdoor Education" by Jamie Brunsdon - *Blue Ridge Center Y Alumni Room***
Keynote address sponsored by Brad Daniel on behalf of 2nd Nature TREC

3:45 Refreshment Break – *Y Alumni Room*

4:00 **Research Presentation Session I - *Blue Ridge Center Y Alumni Room* – Bruce Martin, Presider**

Note: Each research-presentation session features several papers and ample time for discussion. These sessions, like the entire symposium, are intended to be highly constructive and interactive. Each presenter is allotted 15 minutes to present, followed by 5 minutes for discussion. The schedule permits additional discussion of the papers and their implications at the conclusion of each session and throughout the symposium.

STEM Learning in Outdoor Adventure Education: Instructor Perspectives; Lisa Meerts-Brandsma (University of Utah), Kim Weaver (University of Utah), Regina Fry (University of Utah)

Outdoor Recreation as an Informal STEM Learning Context in Rural Communities: A Mixed-Methods Study; Jayson Seaman (University of New Hampshire), Amanda Bastoni (CAST), Andrew Coppens (University of New Hampshire), Cindy Hartman (University of New Hampshire), Courtney LaChaine (CAST), Kate Moscouver (Ohio University)

Nature Interaction Assists with Coping and Resilience: An Interaction Pattern Approach with Adolescents with Histories of Trauma in a Youth Group Home Participating in Outdoor Education, Daily Nature Interaction, and Adventure Excursions; Chrystal L. Dunker (Antioch University New England), Carly Gray (University of Washington), Peter H. Kahn, Jr. (University of Washington)

Place Loss as a Result of Natural Disaster: A Pilot Study of Outdoor Water-Based Recreators; S. Anthony Deringer (Texas State University), Deidra Goodwin (The Pennsylvania State University)

5:30 p.m. **General Discussion & Questions for Presenters - Bruce Martin, Presider**

5:45 p.m. Adjourn

6:00 – 6:45 p.m. Dinner – *Blue Ridge Center Robertson Room 2*

7:00 p.m. **Research Presentation Session II – *Blue Ridge Center Y Alumni Room* – Lisa Meerts-Brandsma, Presider**

A Qualitative Analysis of What Motivates Young Adult Birders; Sarah Wood (University of Wisconsin – Stevens Point), Kendra Liddicoat (University of Wisconsin – Stevens Point)

Connection to Nature and Community: Assessing the Impact of a Multicultural Environmental Education Affinity Group on BIPOC Adults; Lauryn Cartee (University of Minnesota Duluth)

Exploring Gender Boundaries Within University and College Outdoor Programs in North Carolina; Calista Quirk (Elon University), Evan Small (Elon University)

8:00 p.m. **General Discussion & Questions for Presenters - Lisa Meerts-Brandsma, Presider**

8:15 p.m. Evening Social – *Blue Ridge Center Y Alumni Room*
The Friday Night Social includes dessert, beer, wine, and soda. Sponsored by: The Association for Experiential Education (AEE)

Saturday, February 7, 2026

7:30 – 8:45 a.m. YMCA Mountaintop Café and Gift Shop Open

8:00 – 8:45 a.m. Breakfast – *Blue Ridge Center Robertson Room 2*

8:45 a.m. **Research Presentation Session III – *Blue Ridge Center Y Alumni Room* – Kendra Liddicoat, Presider**
**Arrange Lunch Breakout Groups (Kendra Liddicoat)*

Phenomenological Conditions of Sublime Encounters in Outdoor Adventure Education: An Autoethnographic Study; Amy Smallwood (Colorado Mountain College)

Am I an Outdoor Person? A Social Cognitive Analysis of Cultural Barriers and Connections to Outdoor Spaces; Jim Shores (Asbury University)

Autoethnography as a Pedagogy in a Wilderness Literature Seminar: Bruce Martin (Ohio University)

Exploring the Role of Touch Perception, Thermo-Reception, Proprioception, and Force Detection in Outdoor Behaviors That Promote Nature Connection and Self-Transcendent Positive Emotion; Mark Harvey (UNC Asheville)

10:15 a.m.	**General Discussion & Questions for Presenters – Kendra Liddicoat, Presider**
10:30 a.m.	Refreshment Break *–Y Alumni Room*
10:45 a.m.	**Research Presentation Session IV – *Blue Ridge Center Y Alumni Room* – Paul Stonehouse, Presider**

Nature-Based and Immersive Interventions to Enhance Socio-Emotional Competencies in School Bullying Victims: A Scoping Review; Ann Joma Job, Denise Mitten (Prescott College)

An Investigation into Outdoor Adventure Program Participants' Sense of Community and Resiliency; Jeremiah Stanton-Rich (Western Carolina University), Andrew J. Bobilya (Western Carolina University), W. Brad Faircloth (UNC Asheville), Joy James (Appalachian State University)

Sail Training: Investigating Youth Perspectives and Process Factors in Positive Youth Development; Anita Tucker (The University of New Hampshire), Casey Blum (Martha's Vineyard Ocean Academy), Diana Gonzalez (The University of New Hampshire), Kathy Chau Rohn (The University of New Hampshire), Jennifer Thompson (The University of New Hampshire)

What Do You Mean I Can't Bring My Phone?: Assessing the Impact of an Electronic Device Policy for Extended Outdoor Experiences; Qwynne Lackey (SUNY Cortland), Amy DiRenzo (SUNY Cortland), Katherine Hovey (SUNY Cortland), Jason Page (SUNY Cortland)

12 15 p.m.	**General Discussion & Questions for Presenters – Paul Stonehouse, Presider**
12:30 p.m.	Lunch, Breakout Group Discussions, Free Time *–Robertson Room 2 (*CEO Research Committee – Robertson Room 1)*
12:30 – 2:00 p.m.	YMCA Mountaintop Café and Gift Shop Open
2:00 p.m.	**Research Presentation Session V– *Blue Ridge Center Y Alumni Room* – Tim O'Connell, Presider**

Beyond Entertainment: Exploring Humor as a Response to Stress in Outdoor Education Programming; Adam Arno (Elon University), Evan Small (Elon University)

Network Analysis of Outdoor Academic Programs in the United States; Brent Bell (University of New Hampshire), Jeff Turner (Georgia College and State University), Jeremy Jostad (Eastern Washington

University), Kellie Gerbers (Westminster College)

You Can't Pour from an Empty Cup: Integrating Mindfulness into Experiential Curricula; Ryan Zwart (University of Tennessee at Chattanooga), Alexandra Frank (University of Tennessee at Chattanooga)

What I Wish I Knew Before Teaching Outdoors: Interviews with In-Service Teachers; Becky Schnekser (Prescott College), Michael Riley (Prescott College)

3:30 p.m.	**General Discussion & Questions for Presenters - Tim O'Connell, Presider**
3:45 p.m.	Group Photo – *Outside* "Hurricane Helene, the Swannanoa Valley and YMCA Blue Ridge Assembly – Insight Into This Unique & Devastating Event" – Brad Daniel, 2nd Nature TREC Refreshment Break – *Y Alumni Room*
4:15	**Research Presentation Session VI– *Blue Ridge Center Y Alumni Room* – Pete Allison, Presider**

What is "Core Outward Bound?" A Global Contemporary Look at Staffs' Perceptions; Nick Rushford (University of Utah)

Trust Fall: Declines in Trust After COVID Among Outdoor Orientation Programs; Brent Bell (University of New Hampshire), John Henkelman (University of New Hampshire)

Examining Outward Bound Students' Most Valued Outcomes and Corresponding Learning Mechanisms: A Global Perspective; Nick Rushford (University of Utah), Soumya J. Mitra (University of Utah), Jim Sibthorp (University of Utah), Sarah Wiley (Outward Bound International)

Why Do Some Return? Understanding Reengagement After Outdoor Accidents; Kelli McMahan (Baylor University), Gary Ellis (Texas A&M), Parissa Paymard (Texas A&M), Hyunrae Kim (Texas A&M)

5:45 p.m.	**General Discussion & Questions for Presenters – Pete Allison, Presider**
6:00 p.m.	Dinner – *Blue Ridge Center Robertson Room 2*
6:45 p.m.	Symposium Wrap Up, Scholarship Fundraising and Next Steps - *Blue Ridge Center Robertson Room 2* – 2nd Nature TREC and Amy Direnzo *Journal of Outdoor Recreation, Education and Leadership (JOREL) CEO Special Issue* – Pete Allison & Bruce Martin, Guest Editors Evening Social –*The Saturday Night Social includes live music, hors d'oeuvres, beer, wine and soda. Social sponsored by Western Carolina University Experiential and Outdoor Education Program*

Sunday, February 8, 2025

7:00 – 9:00 a.m.	Continental Breakfast – *Blue Ridge Center Robertson Room 2*

Becky Schnekser, Recipient of the CEO Graduate Student Research Scholarship

Becky Schnekser is a current PhD Candidate in Sustainability Education at Prescott College in Prescott, Arizona. She received her BS in Elementary Education and MS in Curriculum and Instruction from Longwood University in Farmville, VA. Becky has been a teacher for 19 years, with 17 years of experience in the classroom and two years at a museum. Every summer since 2018, she has completed a field season in the Peruvian Amazon as the Education Lead for the Boiling River Project, alongside PhD Candidate and National Geographic Explorer Andres Ruzo, to bring place and phenomenon-based STEM education to classrooms. In 2021, she published Expedition Science: Empowering Learners Through Exploration, a book meant to inspire and motivate classroom teachers to think differently about how learners are engaged in classrooms and beyond. Her entire career as a teacher has been dedicated to engaging learners in powerful and empowering learning experiences that utilize experiential methodology in outdoor contexts.

In 2023, she began her PhD to investigate what impacts pre-service teachers' decisions to utilize school-based outdoor experiential education (SBOEE). This pursuit led her to examine how self-efficacy is developed in pre-service teachers through teacher preparation programs, particularly in SBOEE. She is especially interested in how exposure to SBOEE in teacher preparation programs impacts pre-service teachers three to five years into their careers in the classroom. She is grateful for the mentorship of Michael Riley, her Dissertation Chair and co-author of the abstract "What I Wish I Knew Before Teaching Outdoors: Interviews with In-Service Teachers." Chosen as the top-rated abstract in a blind review of accepted abstracts with a graduate student as the lead author, Becky's presentation is scheduled for Session V, which begins at 2:00 pm on Saturday, February 7th.

Table of Contents

STEM Learning in Outdoor Adventure Education: Instructor Perspectives

Lisa Meerts-Brandsma, Department of Parks, Recreation and Tourism
Kim Weaver and Regina Frey, Department of Chemistry
University of Utah

Since the National Science Foundation popularized the term in the early 2000s, STEM—referring to science, technology, engineering, and mathematics—has been positioned as critical to economic growth and innovation (Dugger, 2010). STEM skills are also thought, at the individual level, to enable people to interpret scientific information on environmental and health issues, evaluate evidence in public discourse, and participate effectively in democratic processes (National Research Council, 2011). Despite its importance, STEM education in the United States is often viewed as underperforming (National Science Board, 2024), creating an imperative to identify and leverage engaging contexts that can cultivate STEM learning.

While formal schooling remains the primary venue for STEM instruction, there is growing recognition of STEM learning in informal and co-curricular environments, including outdoor education (National Research Council et al., 2015). Many schools now partner with outdoor education providers to offer experiential, hands-on STEM learning that complements classroom instruction (Meerts-Brandsma et al., 2025). When STEM content is intentionally integrated, outdoor education not only addresses formal STEM curriculum but also draws on its strengths in social and emotional skill development (e.g., teamwork and collaboration), which are essential for success in STEM fields (Collins et al., 2016; National Research Council, 2011). Although research supports the effectiveness of outdoor education when STEM is an *explicit* learning objective (see Aladağ et al., 2021; Hougham et al., 2018), comparatively little is known about the extent to which STEM learning emerges as an *implicit* outcome.

A subset of outdoor education, outdoor adventure education (OAE) is characterized by extended small-group backcountry expeditions (Hattie et al., 1997) and is noted for its durable, often transformative impacts on participants (Meerts-Brandsma et al., 2019). Despite research on embedding STEM curriculum in outdoor education broadly, OAE has not been studied as a site of STEM learning, even though its structure makes it a potential candidate. For instance, OAE frequently involves the practical application of STEM knowledge, such as when participants apply principles of physics for climbing; use environmental science to interpret weather patterns; and draw on mathematics and technology for navigation (Gookin, 2006). These authentic scenarios may provide a natural context for reinforcing and integrating STEM skills while also building the leadership and decision-making capacities that define OAE program outcomes.

Because STEM outcomes are rarely stated as program objectives in OAE, little is known about how STEM learning occurs in this setting. To begin addressing this gap, this qualitative study examined the perspectives of outdoor adventure education instructors, who serve as the link between curriculum design and student experience (Sibthorp et al., 2011). By clarifying the STEM contributions embedded in OAE, the field may more effectively articulate its alignment with current educational priorities, strengthen partnerships with schools, and enhance student learning outcomes.

Methods

All instructors who taught a backpacking course for high school aged students at NOLS in summer 2024 were invited via email to participate. We conducted semi-structured interviews with 30 instructors, each lasting about one hour. The interviews were recorded on Zoom, transcribed, and focused on instructors' attitudes toward, beliefs about, and perceived ability to incorporate STEM content into their instruction. Each participant was asked for their definition

of STEM. A team of three researchers initially read and discussed several transcripts to develop a codebook that identified key content related to the research question. To ensure reliability, three researchers refined the codebook until reaching consensus on its application. Two coders then calibrated on eight interviews before coding the remainder independently, maintaining an audit trail throughout the process.

Results

Analysis of the interviews generated nine codes, organized into three broader themes.

Table 1

Key Themes, Codes and Narrative Summaries

Theme 1: STEM is inherent to OAE but often goes unrecognized.	
Culture of Teaching STEM	Instructors were divided, with some viewing STEM skills as central to NOLS courses while others denied STEM skills were taught on course.
STEM Discrepancy	Many instructors denied teaching STEM yet described activities where they taught STEM content and processes.
STEM Opportunities	Instructors named more than 14 explicit or implicit opportunities for STEM instruction, including general content and specific STEM-focused lessons.
Theme 2: Narrow, stereotype-based definitions of STEM lead to it being overlooked.	
STEM Definitions	Instructors often defined STEM through stereotypes, describing it as academic and occurring in controlled environments, like labs, in contrast to OAE's unpredictable, real-world settings.
STEM Attitude	STEM was frequently described as difficult and associated with negative connotations, though some instructors expressed enthusiasm for it.
Instructor Background	Prior STEM experiences, particularly formal education or work experience, shaped instructors' attitudes and definitions.
General Teaching STEM Beliefs	Many believed STEM required explicit scientific concepts, terminology and structured instruction rather than integrated/applied learning. Few identified scientific processes, such as observation or prediction, as STEM skills.
Theme 3: Instructors often shifted from denying to recognizing STEM in OAE.	
Emerging STEM Awareness	Instructors who initially denied teaching STEM often revised their views during the interview, recognizing course content such as ecology, geology, snow science, and environmental science as STEM.
NOLS Teaching STEM Beliefs	Instructors considered STEM instruction optional, with the potential to enrich courses when done well or to disengage students if done poorly.

Discussion

This study showed that opportunities for STEM learning occur frequently in OAE, yet they are often overlooked because of how STEM is defined. Many instructors viewed STEM as overly academic or out of place in OAE, suggesting that elevating STEM in this setting may be less about changing practice and more about reframing the language used to describe it. The term itself often carried negative connotations, even though instructors regularly taught STEM concepts through activities such as navigation, observation of their environment, and decision-making. Framing OAE as a site of STEM learning could also serve organizational priorities, particularly in partnerships with schools where demonstrating STEM outcomes strengthens the case for OAE's value. When paired with OAE's strengths in experiential learning and social-emotional skill development, this reframing may position OAE as a good partner for schools. Such a change would occur at the organizational level but be enacted through instructors, making it critical to understand their perspectives and experiences. To support this, the next step would be to develop and test professional development resources that help instructors recognize and intentionally highlight the STEM already present in their teaching.

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Outdoor Recreation as an Informal STEM Learning Context in Rural Communities: A Mixed-Methods Study

Jayson Seaman, University of New Hampshire
Amanda Bastoni, CAST
Andrew Coppens, University of New Hampshire
Cindy Hartman, University of New Hampshire
Courtney LaChaine, CAST
Kate Moscouver, Ohio University

Although rural youths' academic performance matches urban and suburban peers in high school, they are less likely to persist with STEM majors and career paths because of disparities in STEM learning experiences, classroom resources, geographical access, STEM mentorship, and career exploration options (Dobbins et al., 2024). In addition to material barriers, rural learners also encounter psychosocial challenges related to exclusion, stigma, and self-doubt that undermine their views on the relevance of STEM to their lives, their self-efficacy beliefs, and their prospective futures involving STEM (Kastelein, 2019). Rural youth therefore experience what Fraser et al. (2021) called "dislocation from STEM education" which manifests as persistent underrepresentation in STEM careers. To address these disparities, rural STEM programs must reduce material barriers while also leveraging youths' lived experiences in ways that counteract beliefs that they are not a "STEM person" (Turner, 2023). The present study examined outcomes from a 10-month ISL intervention delivered to 54 youth (mean age 14 [SD=1.59]) in rural northern New Hampshire in January-October, 2023, involving monthly OR-related "STEM challenges" delivered asynchronously to youth via mobile devices.

Literature Review

Outdoor recreation as a rural ISL context

The outdoors figures prominently in youths' "rural lifeworld" as an important leisure context and a resource for social and career identity (Seaman & McLaughlin, 2014; Yahn & Ricket, 2024). Moreover, at $1.1T in national economic output, outdoor recreation (OR) is being promoted as a growth engine in natural resource-dependent rural communities (Outdoor Recreation Roundtable, 2024; Tolan, 2022; U.S. Departments of Agriculture Interior and Commerce [USDA-I-C], 2024). Helping rural communities transition from resource-extractive industries to new forms of prosperity will require preparing "skilled technical workers" who "can produce ground-breaking ideas, drive cutting-edge research, and bridge the gap between theoretical advancements and real-world practical solutions" (National Science & Technology Council, 2024, p. 4). Given that STEM is instrumental to the production, management, and consumption of OR resources and services (e.g., Knight & Hao, 2022; Waal, 2020; Wilson et al., 2018), OR can be a promising context for STEM learning interventions in line with rural economic and workforce objectives. Yet, to be effective, rural ISL designs should include "advancing a sense of localism and value of place as an asset … by increasing student/family/community participation in outdoor, hands-on intergenerational learning" (Dobbins et al., 2024, p. 19).

Theoretical frameworks and intervention design

The first framework guiding this study was sociocultural theory, which recognizes the following properties of informal learning: it is nondidactic, embedded in meaningful activity, and builds on learner choice and independent motivation (Rogoff et al., 2016, p. 356). The second was *integrated STEM learning*, which situates STEM in authentic contexts (Kelley & Knowles,

2016) and "focuses on innovation and the applied process of designing solutions to complex contextual problems using current tools and technologies" (Kennedy & Odell, 2014, p. 246).

The intervention incorporated the above principles as well as Universal Design for Learning (UDL) accessibility strategies (Rose & Meyer, 2002) to engage 54 youth across five partner sites in rural northern New Hampshire, each in communities actively developing OR assets. After a kickoff meeting/training in January, 2023, youth received monthly "challenges" delivered over a mobile app called *ORfolio* (see Figure 1), prompting them to address a STEM-related question pertaining to OR activities they enjoyed alone or with friends/family; in this sense OR functioned as a "free-choice" ISL environment (Falk & Dierking, 2019). Each cohort also attended a monthly check-in meeting hosted during school hours, to share learning and troubleshoot the app. The project culminated in a final in-person celebration in October, 2023. In total, youth could complete 14 challenges (two at kickoff, 10 monthly, two at final event) and attend nine check-in meetings. The study sought to address three questions: (1) Did an asynchronously delivered ISL intervention impact youths' STEM interests, perceptions of family STEM supports, and confidence with STEM? (2) Did project outcomes vary among youth with different sociodemographic profiles? (3) How did youth describe their experience in the intervention?

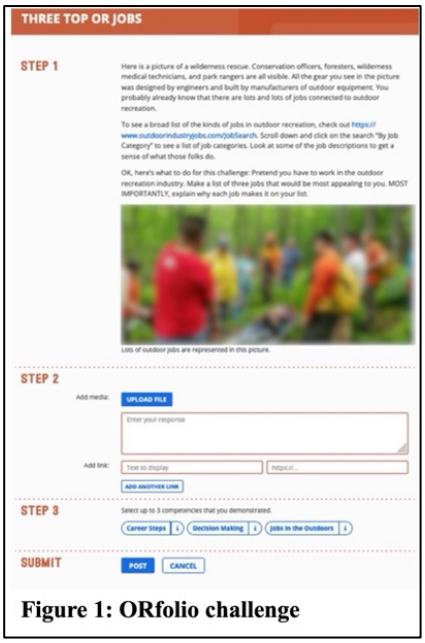

Figure 1: ORfolio challenge

Methods

The study employed a sequential explanatory mixed-methods design to examine project impact. Quantitative data were gathered through pre- and post-intervention surveys measuring OR activity involvement and barriers, STEM confidence, STEM supports, and environmental concern. Qualitative data included ORfolio challenge responses and final reflections. Quantitative analyses reported here involved paired t-tests while qualitative data were examined to help illuminate and clarify statistical outcomes.

Results

Fifty-two of 54 youth completed the project for a 96% retention rate. Table 1 reports pre-post outcomes on key variables.

Table 2
Pre-post comparisons of STEM-related variables following 10-month ORfolio intervention

Full cohort (N=52)	Pre		Post				
Variable (Scale: 0-5)	*M*	*SD*	*M*	*SD*	*t*(51)	*p*	Cohen's *d*
Personal STEM supports	2.83	1.47	3.31	1.08	-2.70	.01	.374
Family STEM supports	2.53	1.41	3.18	1.13	-3.63	<.001	.503
Total STEM supports	2.68	1.34	3.25	1.03	-3.52	<.001	.488
STEM confidence (1-5)	2.85	1.23	3.48	1.06	-5.04	<.001	.699
Environmental concern (0-4)	2.32	.80	2.82	.66	-4.45	<.001	.617

No significant differences were found on any of the above outcomes between groups reporting more or fewer sociodemographic disadvantages even though youth fewer disadvantages reported more STEM supports at pre-test. Qualitatively, participants expressed shifts in recognizing the

relevance of STEM: “At the start of the project I didn't really see STEM as much in the outdoors where now when I go outside … I see it everywhere around me.” “Before this project I didn't want anything to do with STEM. I thought it was pointless … I hated everything about STEM and now that I've done this project I like it more.” Additional results will be reported if accepted.

Discussion and Implications

Results indicate that participants scored significantly higher on post-test measures of STEM supports, STEM confidence, and environmental concerns than they did on the pretest. This finding was true regardless of whether they reported more or fewer disadvantages. Accessibly-designed, mobile device-enabled ISL interventions in rural communities that leverage the outdoors as a STEM ecosystem may therefore function as a form of “resource compensation” (Morris, 2015) that helps ameliorate disadvantages and may contribute to greater rural representation in STEM fields.

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Nature Interaction Assists with Coping and Resilience: An Interaction Pattern Approach with Adolescents with Histories of Trauma in a Youth Group Home Participating in Outdoor Education, Daily Nature Interaction, and Adventure Excursions

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Background

Adolescents with adverse childhood experiences (ACEs) often experience disruptions in emotional, social, and behavioral development. For youth in group home settings, supportive environments play a central role in recovery and resilience. Outdoor education (OE) and environmental education (EE) programs are especially positioned to provide such environments by combining structured learning, experiential engagement, and opportunities for self-discovery in natural settings. However, the OE and EE literature offers limited insights into how these benefits unfold for trauma-experienced youth in residential care, leaving little known about *how* they engage with nature and *why* these experiences matter for coping and resilience. This study addresses these gaps (Dunker, 2025) by applying the Interaction Pattern Approach (IPA), a methodology that identifies and analyzes meaningful human–nature interaction patterns (IPs) for their resilience supportive functions. IPs are generalizable forms of embodied nature engagement characterized by a pattern consisting of a verb for what one is doing, a noun reflecting the nature one is interacting with, and a preposition as needed (e.g., *Smelling rain, Climbing boulders, Hiking up trails*, *Sitting under a tree*). Building upon previous IP research involving diverse audiences and contexts of human-nature interaction (See Gray et al., 2025; Kahn et al., 2010, 2012, 2018; Lam et al., 2023; Lev et al., 2020; Li & Kahn, 2025; Weiss et al., 2023; Yerbury & Lukey, 2021), this study explores resilience processes through the lens of IPs within daily outdoor education, spontaneous nature interaction, and adventure excursions, the insights from which can inform educators, practitioners, and researchers supporting vulnerable youth.

Theoretical Framework

This study deepens and expands an IP approach reflected in previous studies. More specifically, it draws from ecological psychology (e.g., affordances, Gibson, 2017), restorative environment theories (Hartig, 2021; Kaplan, 1995; Ulrich, 1984; Ulrich et al., 1991), and Social Safety Theory (Slavich, 2020; Slavich et al., 2023), and conceptualizes nature within physical and relational contexts that support emotional health and resilience. These frameworks underpin this study's IPA as a bridge between theory and practice in OE and EE.

Methods

Using a 22-month ethnographic case study design in a residential group home, the researcher participated in daily life, co-leading environmental education, outdoor learning, and adventure programs. Data were collected through participant observation, photovoice, and semi-structured interviews with 12 adolescents. All qualitative data were analyzed using the IP coding manual developed for this study (Dunker et al., 2025) to identify and categorize human-nature interaction patterns at three levels of abstraction (Levels 1–3).

Results

A total of 1,212 Level 1 IPs were coded and then abstracted into 205 Level 2 IPs enabling greater ease in discussing large numbers of similar IPs. Level 2 IPs were further synthesized into 62 Level 3 IPs (e.g., *Experiencing periodicity of nature, Evaluating risk in nature, Moving along edges of nature*). At the Level 3 IP level, a hybrid inductive–deductive thematic analysis then identified coping and resilience "strengths" and their higher order "domains" that participants

described as afforded by each IP. Seven "Coping and Resilience Domains" emerged from participants' discussions of their interactions with nature and their nature relationships. These domains were supported by 37 "Strengths" that capture adaptive processes and sources of resilience (representative strengths shared):

- **Transcendence:** awe, gratitude, hope
- **Social and Moral Relationship with Nature:** ecological awareness, compassion for non-human others, social and emotional safety with nature
- **Self-Regulation:** managing stress, sensory grounding, contemplative awareness
- **Autonomy:** self-efficacy, calculated risk-taking, self-esteem
- **Sense of Purpose:** meaning, creativity, goals
- **Human Bonds:** empathy and connection
- **Critical Thinking:** insight, flexibility

These domains were each afforded by a range of human-nature IPs, illustrating how diverse types of nature interaction foster coping and long-term resilience for adolescents with ACEs.

Discussion

Findings underscore an important role of OE and EE, daily nature interaction, and adventure programming in supporting resilience for adolescents in residential care. Our results provide three contributions to OE and EE: (1) Applied: IPs identified in this study can guide practitioners' intentional design of opportunities to promote growth and healing (e.g., rhythmic encounters with natural cycles, wildlife experiences); (2) Empirical: documentation of 62 IPs showing diverse forms of nature engagement can support coping and resilience among youth in residential care; (3) Conceptual: IPA methodology articulates a "nature language" linking interaction to coping and resilience processes. By demonstrating how specific nature interactions foster coping and resilience, the study offers a framework for intentionally designing nature-based programs that strengthen social, emotional, and developmental outcomes.

Conclusion

Adolescents with trauma histories promoted coping and resilience through rich patterns of nature interaction embedded in environmental and outdoor experiential education. The Interaction Pattern Approach integrates theory, method, and practice to guide educators in fostering resilience-supportive interactions and environments. For the CEO community, these findings highlight daily nature engagement and outdoor programming as integral to educational approaches that support healing and human development, particularly for youth with ACEs.

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Place Loss as a Result of Natural Disaster: A Pilot Study of Outdoor Water-Based Recreators

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Background

Place attachment is the bond between a person and a specific place (Hidalgo & Hernández, 2001). Place attachment has long been associated with a wide variety of recreational activities, especially outdoor recreation activities, which tend to have a higher degree of human/place interaction (Kyle et al., 2004). Among other benefits, place attachment has been linked to various aspects of life satisfaction (Vada et al., 2019). While many studies have examined the relationship between place-attachment and outdoor recreation, and at least one study has examined how changes to a place are perceived by recreationalists (Ganzevoort & van den Born, 2019), not much is known about how recreationists experience the loss of places to which they felt attachment. This pilot study seeks to understand the experience of outdoor recreators who experience place loss due to natural disasters. This project will focus specifically on water recreators who experience massive flooding within their regular water recreation areas and how the loss or change of place impacts their experience of the place and their place attachment.

Human interaction with place has been examined thoroughly in the last 30 years. Researchers have studied a variety of frameworks, such as sense of place (Farnum, 2005), place bonding (Hammitt et al., 2009), and our chosen framework, place attachment (Hidalgo & Hernández, 2001). Whole fields of study have emerged based on different conceptualizations of place attachment, such as place-based education (Smith, 2002). Place attachment is conceptualized as an emotional or affective bond between a person or a group of people and a particular place (Giuliani & Feldmant, 1993, p. 143). Researchers suggest that many factors may impact a person's level of place attachment. For instance, for recreationists, level of specialization in a recreational activity may impact place attachment (Bricker & Kerstetter, 2000). Place attachment is correlated with a variety of positive psychological benefits for humans, such as sense of belonging, relaxation, positive emotion, personal growth, connection to nature, and positive ecological behavior (Brownlee et al., 2015). Though considerable work has been done on the construct of place attachment, little work in the field of recreation has been done to examine place loss after large-scale natural disasters.

Literature suggests that natural disasters can have major impacts on place attachment and the positive emotion that correlates with place attachment (Zheng et al., 2019). However, previous studies have focused on the attachment to a person's house or local living space, not to their recreational spaces. We were unable to find any research that examined the impacts of place loss for recreationists due to natural disasters.

Method

Qualitative research is sensitive to context and utilizes rich, holistic data to gain understanding (Merriam & Tisdell, 2015). Because of the exploratory nature of this project, the data from this study are likely to need interpretation through the context of each place and disaster. A qualitative approach is the best method to understand these complex data. We approach this work as social constructivists and assume that there are multiple realities and that many factors influence the perception of participants in our study. We used a multi-site case study (Yin, 2018) to understand the experiences of recreators after loss of place. For site

selection, we used the following criteria: a) a place where people commonly participate in some form of outdoor water-based recreation regularly (defined as 4 experiences before the flood and at least 1 after), b) a place where a natural disaster has drastically changed the landscape, and c) places where those drastic changes overlapped with heavy recreational usage. We have selected the following sites: central Texas, focused on water recreators within the Blanco River basin after the flood event in 2015, and in North Carolina, from the French Broad drainage from the flooding resulting from the remnants of Hurricane Helene in 2024. In the case of the Blanco River (2015 flood), we had the opportunity to ask people to reflect on their experiences from more than 10 years ago. In the case of the French Broad River, we were asking about a flood that happened a little more than a year prior to the interview. This choice was intentional, and we believe it elicited data that is widely variable and helped illuminate the experience of recreators at various lengths of time from the event. Researchers conducted semi-structured interviews with a set of starting questions and then used probing questions to gather additional data. Interviews were transcribed and coded using thematic analysis (Braun & Clarke, 2006). Researchers began with a broad first round of coding in which codes were formed based on potential themes. Then, researchers completed a second round of coding to identify themes (Creswell & Poth, 2018).

A short pre-interview survey was conducted using Qualtrics. The survey asked demographic and baseline questions like how connected the person felt to the river in question and how often they visited the site before and after the flood. These data are reported in the findings section of this paper alongside the data from the semi-structured interviews.

For this pilot study, participants were recruited using a snowball sampling method. Both locations had one researcher who had experience in the area of the flood. The researchers began by contacting people they knew and then widening the scope of the interviews by asking participants if they had anyone else who would be willing to do an interview. In the case of the French Broad River, a researcher made a post in a closed social media group that was used to communicate amongst guides on the French Broad River. For the pilot study, 6 interviews were completed, two about the Blanco River and four about the French Broad River. Participant ages ranged from 21 – 67. All participants were white. Four were females and two were males. Interview lengths ranged from about 25 minutes to almost two hours. All of the participants from the French Broad River were, or had been, commercial river guides on the French Broad River. The two participants from the Blanco River were both involved in summer camps and employed by the summer camp for more than 10 years.

Findings

Participants in this study were all closely connected to the river that was impacted by the flood. In the pre-survey, researchers asked participants to mark on a Likert scale how much they agreed with the statement, “I identify strongly with the impacted area,” and all 6 participants strongly agreed. Researchers also asked participants about their frequency of participation before the flood, within three months of the flood, and now. All participants reported some drop in frequency during the three months after the flood, but most reported a recovery of frequency by the time of the survey.

During the qualitative interviews, participants illustrated what the respective floods meant to them personally. Out of the six participants in the study, only one claimed a low level of personal impact from the flooding; the rest of the participants in the study described large impacts of the flood. When asked about the impacts of the flood, participants reported impacts that included physical impacts like loss of large trees, loss of vegetation, relocated islands and sandbars, and an influx of trash along the river. They also described a loss of livelihood and a

loss of ability to be on the river. Participants who were raft guides lost their source of income during the middle of rafting season, and some were forced to move and seek jobs in other locations away from the river. Some participants reported an emotional cost to the flooding, such as having to leave the river, or not being able to be on the river regularly, as they had before the flood. When participants asked what the river provided for them before the flood, some said income, some said fun, and several said that it provided them with peace. One participant said it was their second home, they said, "It gives you that peace and tranquility, and, you know, a sense of familiarity, but it's the familiarity that is not there right now [post flood]." This participant was not the only respondent who suggested that the flood had taken more than just a physical place away, but had also taken a sense of peace away. One participant suggested that the flood caused them to think of the river differently. They said,

> I didn't think I would be a raft guide again. And I meant that I had a very hard time thinking about the river I loved wiping out towns and people, and places I loved. And so in my mind, I didn't think of the river as a place of joy. I thought of it as like a place of destruction and so and I and like everyone else, I think I was very frightened too of like what it was gonna look… I blame the river, which I guess is maybe natural, but it's also such a silly thing to do because it's just a river, you know, and it was really a storm, you know and and blaming this inanimate, powerful object that, you know, has no autonomy, you know, it's just very strange.

Indeed, each participant suggested that flooding had impacted the way that they interacted with the river, but most participants said that they were back to similar levels of interaction with the river as before the flood event. Researchers asked participants if they ever thought the river would be the same again, and most suggested that they did not think it would be. One participant said that they do not visit the river for peace as much anymore. Another participant suggested that though the river would never be the same, but, "that's fine." Multiple participants suggested that "mother nature" changes things and indicated the changes were temporary from a grand view.

Limitations

This study is limited by its sample size and diversity. The pilot study has helped the researchers to refine their questions and methods for a larger study that will include more interviewers from a more diverse set of experiences. The follow-up study will also include more rivers and varying lengths of time post-disaster.

Discussion and Conclusion

After major disasters, participants indicated that their relationship with their places had changed. While physical changes were long-lasting, the things that the river provided participants often returned. In most cases, participants suggested that their feelings of peace and familiarity returned after time, but they also reported that the physical changes may never be the same. The implications of these findings are that people who are deeply connected with places often feel a sense of great loss and even trauma when their places experience large natural disasters like floods, but that, over time, people tend to reconnect with their places and interact with them in a similar fashion to before the disaster. Outdoor recreation professionals should be sensitive to the impacts of natural changes and encourage reconnection.

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A Qualitative Analysis of What Motivates Young Adult Birders

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Introduction

Bird abundance in North America has declined by nearly 30% since 1970 - a net loss of almost 3 billion birds (Rosenberg et al., 2019). Despite this stark decline, birding (also known as birdwatching) as a hobby has greatly increased in recent years, with 96.3 million Americans participating in birdwatching activities in 2022 (USDI, 2022). As a leisure activity, birding can be extremely accessible, requires little equipment or start-up costs, and can be done just about anywhere. It also offers multiple benefits on an individual, community, and societal level, especially connecting to conservation efforts and citizen science participation (Andrews et al., 2024).

Strong correlations have been found between commitment to birding as a form of recreation and pro-environmental behavior (Cooper et al, 2015). Historically, participation in birding has been more common among older demographics and therefore much of the data has described that group, leaving a gap in the research regarding the perspectives of young adults who become committed to birding as a form of leisure. This study aims to explore the motivations, behaviors, and influences of young adult birders (ages 18-35) through the lens of Self-Determination Theory.

Literature Review

Of the 529 North American species included in Rosenberg et al.'s study (2019), 303 are declining, a massive depletion that can be directly attributed to anthropogenic factors such as pesticide exposure, habitat and food loss, building collisions, and predation by domestic cats. Birds provide numerous ecosystem services, so that when their habitats are conserved, other wildlife and plants benefit, as well as the people who live nearby (NABCI, 2022).

Birding as a hobby provides a myriad of benefits – from reducing stress to enjoying the benefits of community through involvement with formal and informal groups of other birders (Andrews et al., 2024). Teenagers who were familiar with local bird species and their migration were more likely to have pro-environmental attitudes (Ortega-Lasuen et al., 2023), and birdwatchers were twice as likely to donate money to conservation and 3.5 times more likely to carry out habitat enhancement on their property than non-recreationists (Cooper et al., 2015). Birding as a pastime is rooted in conservation, as it co-evolved with the field of ornithology and some of the first citizen science efforts such as the Christmas Bird Count (CBC) (Cherry, 2018). Participants of the 2015-2016 CBC were most commonly motivated by scientific and conservation-related reasons (Larson et al., 2020). With the development of apps such as eBird, participating in citizen science is now easier than ever as birders can keep track of their observations while contributing data to wildlife conservation (Cherry, 2018).

Involvement in birding typically increases as a function of age, as the demographic with the highest participation rate in birding is those who are over the age of 55 (Carver, 2024). While less than a quarter of the population of the United States is 55 years or older, 75% of members of the American Birding Association (the largest organization of active birders in North America) fall within this age group (Scott et al., 2009). Around 30% of young adults (ages 18-34) are participating in birding as a form of recreation, however (Carver, 2024).

Social guidance (such as encouragement from family or friends) and nature experiences are the most common influences on one's decision to become involved in birding (Randler & Marx, 2022). Support from family members and involvement with friends and members of organizations

influence a birder's level of specialization the most (McFarlane, 1996). Birding draws in a wide range of levels of commitment, but as birders become more specialized in their ability, their participation in conservation activities increases (McFarlane & Boxall, 1996). Birders with higher degrees of specialization also contribute more to digital citizen science platforms (Randler, 2021; Rosenblatt et al., 2022).

Self-Determination Theory (SDT) can be used to look further at the intrinsic and extrinsic motivations of serious birders. SDT proposes that humans have three fundamental psychosocial needs when pursuing goals: feelings of competence, autonomy, and the ability to relate with others (Deci & Ryan, 2000). Randler (2023) found that most birders are motivated by their desire to experience nature and their personal fascination with birds. A majority of birders start out birding alone, suggesting a high degree of intrinsic motivation (McFarlane, 1996). Citizen scientists seem to epitomize the fundamental needs emphasized by SDT when participating in their hobbies – they are more engaged in their hobbies than non-citizen scientists and place a higher priority on sharing their interests with others (Jones et al., 2018).

The body of research cited in this literature review suggests future research to more closely examine the motivations of serious young adult birders, as well as their behaviors and influences.

Methods

Using a purposeful snowball sampling method, participants in this study were recruited from bird-related organizations, events, and social media groups around the states of Minnesota, Wisconsin, and Illinois. Semi-structured in-depth interviews were conducted with 26 participants in October 2025, with questions about motivations for beginning birding and participants' evolution from casual to serious birder, the role technology has played in this pursuit, which influences and resources have been most impactful and instructive, and how interest in birding has influenced perspective of environmental issues and participation in pro-environmental behavior and citizen science. The interview results will be coded, first through open, then axial, then selective coding, and the completed analysis will include a description of the behaviors of serious young adult birders as it pertains to their birding lifestyle, an exploration of the motivations of this group and whether these motivations are intrinsic or extrinsic, and a summary of what types of events and/or resources have most greatly influenced these young adults to become serious birders. Educational materials focusing on birds will also be analyzed for emphasis on intrinsic or extrinsic motivators they feature, and a catalog of bird-related curriculum will be created.

Results and Discussion

Preliminary analysis of the data shows that technology has been instrumental in many participants' evolution from casual to serious birder, specifically apps such as Merlin and eBird, which simplify bird identification, gamify the "collecting" of species, and make contributing as a citizen scientist easy. Middle or high school projects and college courses sparked an interest in birding for many, due to hands-on experiences, presence of mentors, and assignments to explore trends in bird movement and populations. Although birding as a hobby seems to be a social activity for many of the participants, involvement in birding organizations such as the Audubon Society or American Birding Association is not a priority. Becoming interested in birding has strengthened participants' connection to nature, brought awareness of local environmental issues such as habitat loss, and influenced many to pursue careers in conservation. For most participants, a benefit of the hobby is that it is affordable and accessible, with the cost of gas being their greatest expense tied to it.

The results of this study will be used to better inform educators, program managers, and

curriculum developers as to what methods could attract more young adults to become involved in birding as a form of recreation, therefore increasing conservation efforts for birds and the environment as a whole.

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Connection to Nature and Community: Assessing the Impact of a Multicultural Environmental Education Affinity Group on BIPOC Adults

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Background

This study explores how a multicultural environmental education (MEE) affinity group may influence the connection to nature among BIPOC adults in Duluth, MN. Duluth's location on the shores of Lake Superior make it known for its natural beauty, but the city also has a complicated racial history with current environmental and social justice inequalities, which makes it an ideal location for the study. Semi-structured interviews, paired with participation in four different MEE sessions, offer insights into the way that environmental education can be more accessible and inclusive for those with BIPOC identities, while also considering how race may intersect with perceptions of nature. This research also explores the way that multicultural environmental education (MEE) impacts its learners – especially those living in urban settings (Salazar et al., 2020; Crosley, 2013; Marouli, 2002).

Multicultural Environmental Education

Multicultural environmental education (MEE) originated in the late 1980s from a group named the Three Circles Center, who were a group of educators and activists. Running Grass, who is the primary founder, created the MEE as a response to the ways environmental education could be improved when addressing low-income communities and communities of color. The framework is centered around the intersections of ecology, community, and culture. It heavily draws upon elements of critical pedagogy, the environmental justice movement, and community-based education to facilitate more culturally appropriate experiences for marginalized communities (*About Us – Three Circles*). Running Grass (1994) created a set of principles:

- MEE acknowledges that children may have different needs based upon and shaped by their places and conditions of residence.
- MEE illuminates the essential idea that all cultures have a relationship with the natural world which they and all others can draw upon for understanding and for inspiration.
- MEE uses the opportunity to help children become aware of, understand, and accept and celebrate other cultures and their environmental traditions.
- MEE critiques the forces which have oppressed people as well as nature. To critique these forces means to seek their transformation through research, imagination, and concerted action.
- MEE envisions a multicultural society at peace with the natural world and itself.

Connection to Nature/Inclusion of Nature in Self

The North American Association for Environmental Education (NAEE) states that a connection to nature is the way people identify with nature and the relationships they form with the elements in those environments. Multiple scales exist to measure connection to nature. The specific scale selected for this study is the Inclusion of Nature in Self scale (INS). The INS assesses one's connectedness to nature by measuring the extent to which individuals include nature within their views of themselves (Schultz, 2002). Its applications across diverse audiences, including several racial groups made it a fitting choice for the study (Salazar et al., 2020).

Affinity Groups/Spaces

Affinity groups are spaces intentionally created for people with shared characteristics or common goals (Blitz & Kohl, 2012). The presence of affinity groups can promote the celebration

of differences and the creation of a community within marginalized groups. While affinity groups can serve any crowd with a shared characteristic, this research will specifically focus on the impact of BIPOC groups. Affinity groups and spaces also provide a platform for its members to discuss experiences of discrimination and racism, life experiences, and daily joys (Rushing 2024; Page 2024). These shared spaces are essential for belonging and community, allowing room for learning to take place.

Methods

This study aims to explore how the use of equitable educational tools, such as an affinity group and multicultural environmental education lessons, impacts the inclusion of nature in self for BIPOC adults in Duluth. Participants in this study took part in four educational sessions that revolved around the cultural history of northern MN, natural history of northern MN, and environmental justice. Participants who self-identify as BIPOC and are over the age of 18 were considered eligible to participate. Six adults of various racial and ethnic backgrounds were enrolled in the study. The participants had various ranges of comfort with the outdoors – some had work experience as wilderness guides while others did not like being outdoors at all.

This qualitative study uses phenomenography as its strategy of inquiry. First defined in 1981, phenomenography aims to describe, analyze, and understand lived experiences (Marton, 1981). Two different methods of data collection are used. First, two rounds of semi-structured interviews were conducted with affinity group participants. In the first round of interviews, participants were asked about their past experiences with outdoor recreation or environmental education programming, potential barriers to their participation, and their perceptions about what a connection to nature is. The second round, which took place after the programming sessions, was an opportunity for participants to reflect on their experience. Participants were asked about how equitable and inclusive programming (by using multicultural environmental education lesson plans and a BIPOC affinity group) impacted their experience. Interview data was coded into a list of significant themes that describe how the participants view their experiences. One of the goals of data analysis in a phenomenographic study is to reveal the variation that exists between the individual and collective experiences (Stolz, 2020). As such, the significant themes were sorted into statements that represent feelings of both the participants as a whole and each individual. These statements will help understand what was felt by the whole group while also highlighting the individual variations that may occur between learners.

The second method of data collection is the Inclusion of Nature in Self Scale. Developed by Schultz (2002), the scale features a series of seven different overlapping circles that participants can choose between to represent their relationship with nature (p. 72). This was administered via paper and pencil for participants to circle which pair most aligns with their perceptions. One end of the scale represents complete separation from nature while the other end represents a complete connection. This scale was utilized to assess the impact of the programming on one's inclusion of nature in self, and, as a result, their connection to nature.

This research is guided by components of critical theory, environmental justice, environmental education, and multicultural education as these are considered to be the four streams, or pillars, of multicultural environmental education (Grass, 1996). In a 1996 interview, Antonia Darder notes that educators looking to engage in critical and multicultural education should "create the conditions in the classroom so that our students come to realize that they are always involved in producing knowledge and the act of learning, even if it is not the kind of knowledge or learning that traditional institutions consider legitimate or worthy" (p.15). By engaging with the lived experiences of the participants, educators and researchers can help

extend the knowledge of everyone involved and open the gate for endless possibilities in curriculum (Darder, 1996).

Findings

Data is still being analyzed and full findings are currently unknown. However, preliminary analysis suggests that participants in this study found comfort in learning with a group of others that they had shared characteristics with. Additionally, participants noted that being in a group setting emboldened them to participate in activities that they normally wouldn't on their own, and that allowing time for organic connection to occur was helpful for reflection and learning.

This research contributes knowledge about how environmental education can be more accessible and inclusive for those with BIPOC identities by expanding on the field of multicultural environmental education. Additionally, while there is robust research on connection to nature, there is still more to be known about how BIPOC individuals form these connections and what specific educational elements are important for fostering it.

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Exploring Gender Boundaries Within University and College Outdoor Programs in North Carolina

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Students across higher education struggle with feelings of connection and belonging (Dantzer & Perry, 2023; Robinson, 2020; Cook-Sather & Seay, 2021). As Felton and Lambert (2020) remind us, relationships are at the heart of education and engagement. However, relationships, community, and belonging within educational spaces are mitigated by the assemblages (Puar, 2007) of identities that we all hold. This research seeks to explore the feelings of connection and belonging experienced by female outdoor education students in colleges and universities across North Carolina. Outdoor experiential education has long been an exclusionary space for many, including girls and women (Rogers & Rose, 2019; Warren et al., 2018). Through exploring the lived experience of female outdoor education students, this research puts belonging, connection, and community within a broader social and institutional context.

As a student and emerging researcher, I have long been interested in gendered roles within outdoor education. I am currently an outdoor education student who identifies as female, and I have struggled to navigate outdoor education spaces and the societal expectations put upon me. While there has been research conducted on the experiences of female leaders and participants within outdoor education, my research focuses on college and university students and integrates additional concepts like queer theory, feminist theory, and the human cyborg theory to more fully understand the impact of gender within outdoor education.

Research Focus:

What do female students' experiences look like within outdoor experiential programs in colleges and universities across North Carolina?

Literature Review

Reimagining experiential education through a justice-based lens has become a large focus of the past years (Warren, et al., 2018; Warren, et al., 2014). Taking a deeper dive into gender and the differences that are held with gender norms in our day to day lives is important to note, especially when comparing experiences between genders in our college and university academic settings. Nelkin and Lindee (1997) suggest that “[b]iological arguments have long served to justify social inequalities by casting the differential treatment and status of particular groups as a natural consequence of essential immutable traits” (p. 309). It’s time to change the narrative and find ways to prove that treatment should never change based on the sex of a person or student. *Caught in The Gendered Machine* by Muhr speaks about the fact that “many women thus distance themselves from top management careers as they perceive that organizations are regulated by competitive masculinity” (Muhr, 2010, p. 337). In addition to this such an action is described as “Cyborg Leadership”. On one hand, “The cyborg can therefore change both nature and culture and is capable of giving women new opportunities. But ironically, the cyborgian female leader is tough exactly because of the system she tries to escape” (Muhr, 2010, p. 340). Furthermore, “top female managers are not cyborgs to serve either men or the organization but they turn into something akin to cyborgs in order to fight gender stereotyping and break through the glass ceiling” (Muhr, 2010, p. 341).

Theoretical Framework

This research operates under a constructivist paradigm, believing that "we construct

knowledge through our lived experiences and through our interactions with other members of society" (Lincoln, Lynham, and Guba, 2011, p. 103). A constructivist paradigm allows for an individual interpretation of the world and recognizes that the ability to make meaning is subjective and personal. The focus on the social construction of knowledge and the importance of the shared experience and interactions between people within a society informed the research questions and the data analysis.

Methods and Participants

This study (Elon University IRB #25-3388) employed a mixed-methods design incorporating both surveys and semi-structured interviews. The sample includes female students enrolled in outdoor education programs at colleges and universities across North Carolina. Recruitment occurred through communication with outdoor education faculty, staff, and students. These universities and colleges were chosen based on their existing outdoor education majors and minors. The potential sample size included every university or college within North Carolina who had either a major or minor related to outdoor education. Some schools house their academic programs within Recreation Management, Tourism, or other disciplinary fields and so the terms used across programs vary significantly. Faculty within each program were contacted and asked to pass information about the study on to female students within their programs. Research participants were all within the traditional age for college students (18-22 years old), although the majority of participants were 20-21 years old. The survey includes quantitative measures of perceived and achieved belonging within their academic outdoor education programs along with open-ended questions asking them to explore messaging they have received about gender or how their gender has impacted their outdoor education program. Open-ended survey responses were analyzed using an inductive coding process.

Research participants were then invited to participate in a virtual semi-structured interview. These interviews incorporate a more constructivist approach, and look to capture the social contexts that participants experience. Interview questions ask about instances of belonging, times of social exclusion, and overall feelings of connection to peers and faculty within their programs. Interviews focused on overall experience within outdoor education programs, along with specific questions relating to gender-based experiences.

Data was analyzed following a constructivist grounded theory framework, allowing themes to emerge through iterative coding, comparison, and memoing. Combined analysis of survey and interview data helped to capture both professional strategies and female participant perceptions of their experience within outdoor education programs.

Results and Discussion

Although several themes emerged from the data analysis, the two most relevant to the study's focus are teaching practices and opportunities available to females in outdoor education programs in North Carolina.

Teaching practices showed up in the data in both a negative and positive manner. One participant explained that there is, "Little to no messaging [regarding gender]. I think that the lack of women in permanent department positions in Outdoor Experiential Education is telling". In this instance this student feels as if there is not much female representation within her program that shows in her day to day life. On the other hand, another student stated "Honestly, I have felt a sense of appreciation for women in my outdoor ed program. I find all of my professors and fellow students to be exceptionally supportive". As Lisa Delpit (1988) discusses, navigating cultures and codes power requires explicit instruction and mentorship. If students are receiving mixed messages (or no messages) about gender while in their outdoor education program, how

prepared will they be to navigate the larger field of outdoor education? The data in this code highlight instances of faculty intentionally centering gender in their lessons and other examples where students recognize the lack of support they receive.

Opportunities available for female students within outdoor education programs also showed up in both a positive and negative manner while organizing the data collected. One student wrote that they "had a professor once that asked me if it was going to be an issue since I was the only girl in a 10 person canoeing class". This data implied a negative idea that there may be a problem or awkward tension for a female in a class that was male dominated. When looking at another quote gathered from data taken, a student stated "That women are more and more encouraged to take part in higher roles and/or positions". This quote helps to address the opposite side of the spectrum, that women are highly encouraged within an outdoor education program to seek higher roles.

These findings show that female students may be struggling within their outdoor education programs in ways that are not always visible to faculty, staff, and peers. Thus hencing at a possible change within these programs that may lack appropriate resources and knowledge to form an inclusive learning environment for females within programs. They also showcase the phenomenal practices that are used within the college and university setting to allow for acceptance and enjoyment for female students within outdoor education programs.

Conclusion

This study will expand understanding of the experience of female outdoor education students across the state of North Carolina. Findings showcase both negative and positive experiences and students share recommendations they have for curriculum, pedagogy, and institutional structure. Results can help inform leadership in these programs of how to better their programs and mitigate any negative experiences that students have. More broadly, these college students are the future leaders within outdoor education and so the research has broader potential to effect change across the field.

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Phenomenological Conditions of Sublime Encounters in Outdoor Adventure Education: An Autoethnographic Study

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Background

Traditional outdoor adventure education (OAE) has centered educational aims primarily towards human growth and development, with a specific focus on character and virtue. Many of the movement's early leaders developed their schools and programs to address a perceived decline in physical and moral character, which was often seen as one of the negative impacts of the industrial revolution and urbanization (MacDonald, 1993; Outward Bound, 2020). Recent scholarship, however, has sought to extend the focus of OAE beyond human-centric aims to recognize the ways in which outdoor adventure can also help create positive human-nature relations (Gruenewald, 2003; Jickling et al., 2023; Mannion & Lynch, 2016).

Concurrent with this re-evaluation of educational aims, OAE scholarship is experiencing a growing interest in the nature of numinous, awe-inspiring, and inspirational experiences, including the development of the Sublime Emotion toward Nature (SEN) scale (Bethelmy & Corraliza, 2019) and studies that seek to apply the SEN scale to specific outdoor education experiences (Shores et al., 2024).

New theoretical frameworks within the social sciences and philosophy are challenging traditional research methodologies, however, which creates dissonance between studies of human-nature connections that rely on such methodologies. Specifically, post-qualitative theories and new materialisms challenge notions of duality and objectivity that undergird traditional empirical methods. While new materialism doesn't have a singular definition, various approaches within new materialism share a common commitment: "to problematize the anthropocentric and constructivist orientations of most twentieth-century theory in a way that encourages closer attention to the sciences by the humanities" (Gamble et al., 2019, p. 111). Coole and Frost identify one theme of new materialism as, "an ontological reorientation that is resonant with, and informed by, developments in natural science: an orientation that is posthumanist in the sense that it conceives of matter itself as lively or as exhibiting agency" (2010, pp. 6–7).

Thus, guided by a new materialist theoretical framework, this study builds on theoretical research related to the phenomenology of the sublime (Smallwood, 2023). The theoretical research considered philosophical analyses of sublime experiences, descriptions of sublime experiences found in American Transcendental literature, and Martin Buber's (1970) philosophy of dialogue. These ideas were then assembled to propose sublime experience as a 'primary encounter,' which considers sublime through the lens of relationality, or relational ontology.

The autoethnographic study presented here built upon the theoretical engagement by considering how a primary encounter might play out within OAE experiences. The aim was to describe and reflexively evaluate my own experiences, both as a participant and educator, in order to illustrate and test the notion of a primary encounter.

Methods

Under ethics approval from the University of Cumbria, this study employed interpretive autoethnography to support a phenomenological exploration of sublime experiences in OAE. Autoethnography was chosen due to an identified "crisis of confidence" (Hughes & Pennington, 2018) in the ability to verify another's experience of the sublime. Additionally, given the theoretical framework of new materialism, interpretive autoethnography was chosen as a way to

study a phenomenon that is both highly subjective and relational. An authentic approach to the research called for a methodology that allowed for both subjectivity and reflexivity.

The focus of the data was based on the researcher's six-month wilderness education experience from 2001where the researcher was one of seven other students taking part in outdoor adventure education. Data included the creation of a post-experience timeline memory (Chang, 2008), the researcher's extensive personal journals from both during and after the experience, reflection papers written by the researcher, and group journals that were composed with the researcher's fellow travelers (who provided written consent for this data analysis). These various data sources, combined with the theoretical analysis referenced earlier, provided an assemblage of data to address concerns of validity. Hughes and Pennington define assemblage as it relates to autoethnography as "a collection of multiple items that fit together to provide multiple perspectives and a rich multilayered account of a particular time, place, or moment in history of the autoethnographer and his or her profession" (2018, p. 61). Data assemblage also included adherence to the eight tasks of assemblage outlined by Hughes and Pennington (2018): 1) selecting relevant journal articles, 2) producing twice-told narratives, 3) straddling multiple temporalities, 4) producing personal-professional history, 5) crafting [non]fictions, 6) critical/analytical commenting back to the profession, and 8) reinscribing aspects of practice. Combining journal entries and reflections from multiple time periods and including the shared writing of a group journal helped to develop twice-told narratives that straddled multiple temporalities.

The data was both transcribed (from hand-written journals into Word documents) and voice-recorded. Using Nvivo, the transcribed data was coded into themes that were then analyzed using a constant comparative process. The process included line-by-line coding in Nvivo and listening to the voice-recorded data during outdoor walks. The process of both reading and listening allowed for different attunements to nuances within the data, which helped to elucidate themes. Member-checking occurred through regular meetings with a research advisor who often suggested different ways to interpret phenomena. Regular meetings with another participant from the 2001 wilderness education experience also helped to provide collaboration and re-direction of the reflexive analysis.

Results and Discussion

The results centered on two occasions of a sublime encounter—one with an oak tree, and another with a river. Themes that emerged from the data highlighted several significant aspects of a lived experience that contribute to sublime encounters: 1) time, 2) attention, 3) embodiment, and 4) a posture of humility and respect. ***Time*** played an important role in the way experiences were perceived, though the role of time related to the sublime encounters differed—in one case, time was immersive and intense, and in another case, it was shorter periods but extended over several years. In the case of the sublime encounter with an oak tree, extended time allowed for regular encounters and an awareness of how other elements of the environment were ecologically connected to the oak, "And yet, it wasn't really about the tree at all. Or the birds. Or the seasons. The difference was in me—the shift in my awareness, the time that I gave to seeing, to knowing. The tree…became part of me, and I was part of her" (Smallwood, 2023). Intense, immersive time was an element to a sublime encounter with a river, where interactions occurred for several hours every day over a two-week period. ***Attention*** was another common theme that emerged from the data. This involved cultivating a level of awareness and presence that made it possible to give the experience—and the more-than-human beings within it—complete, uninterrupted attention, free of any agenda. Sometimes, as was the case with the oak tree,

attention became part of a mindfulness routine, "The daily practice of agenda-free time with the Oak allowed for an authentic presence that attuned me to the Oak's sentience and agency" (Smallwood, 2023). In the case of the river, attention was somewhat forced due to the need to read the currents and navigate without upsetting the canoe, "The River required a daily surrendering of control and a continual awareness of the physical interactions between me and the River's ever-changing currents" (Smallwood, 2023). ***Embodiment*** involved being physically immersed in the environment. One example of embodiment came from our river trip, as described by this excerpt from the timeline memory: "…the river became my friend. It caressed me as it carried me along, even though at any moment it could smash me against the rocks. I learned a sort of dance with the river, an understanding. There was a constant flow of power, and by seeking to understand that flow, to work with it and not against it, we danced" (Smallwood, 2023). As students on the 6-month wilderness education program, we were encouraged to approach the more-than-human world from a ***posture of humility and respect.*** Instructor framing of our experiences played a strong role in cultivating this posture. We were encouraged to approach winter's cold and snow with respect for its influence on our bodies and minds. When being trained to kneel in the canoe to navigate the rapids of the river, we were encouraged to think of this from the perspective of humility in the face of the river's power. These subtle framings encouraged me to be more attuned to the more-than-human world and the relational dynamics that were at play in my encounters.

These findings can help OAE practitioners consider how they might recognize the potential for sublime encounters and design programs in ways that can encourage a new focus on the more-than-human world. This supports James Raffan's (1993) research, which illustrated the importance of numinous encounters towards the development of a sense of place. Additionally, theoretical research suggests that sublime encounters can lead to an ethic of care and respect for the more-than-human world and an adoption of an ecological ethos (Brady, 2013). The natural world is a significant part of OAE experiences, but educational outcomes are disproportionately focused on human-centered outcomes. A greater awareness of the unique ways in which we engage with the natural world through adventure may help educators construct experiences that encourage sublime encounters with the more-than-human world. Perhaps, in this way, OAE can be reclaimed from roots that are less attentive to the more-than-human world and recognized as a valuable avenue for eco-centric ethics.

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Am I an Outdoor Person? A Social Cognitive Analysis of Cultural Barriers and Connections to Outdoor Spaces

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Background

As initiatives to broaden participation in outdoor recreation increase (Martin et al., 2024), understanding the cultural factors that shape outdoor engagement becomes increasingly important. Historically, outdoor recreation in the United States has been a predominately white space (Finney, 2014; Ho & Chang, 2022). Recently, organizations have made concerted efforts to facilitate outdoor experiences for groups that have been underrepresented in outdoor recreation (Montero et al., 2018; Sene-Harper et al., 2022). If more people experience the benefits of outdoor spaces, they are more likely to experience health benefits like stress reduction (Yao et al., 2021), lower obesity rates (Polyzos & Polyzou, 2024), and community building (Breunig et al., 2010) associated with time outdoors. In addition, connectedness to nature can positively influence attitudinal and behavioral intentions toward pro-environmental behaviors (Hinds & Sparks, 2008; Jensen & Olsen, 2019; Saipiains et al., 2025).

From a theoretical perspective, this study was framed by Bandura's (1986) social cognitive theory (SCT). A central premise of SCT maintains that people learn behaviors by observing and modeling the behavior of others (Bandura, 1963). However, in social learning there is a reciprocal determinism at play between: 1) personal factors – including one's family and cultural backgrounds, 2) environmental factors - accessibility, familiarity, and the presence of others as situational influences, and 3) behavioral factors – including the various benefits people derive from experiences once they engage in a behavior (Bandura, 1986).

In an outdoor setting, one's family and cultural background often plays a role as to how and if an individual will engage with the outdoors (Pomfret & Varley, 2019; Waite et al., 2023). Accessibility, familiarity, and community are also key factors in outdoor engagement (Daniel et al., 2022; Sibthorp et al., 2007). What one derives from an outdoor experience resulting from one's goal-setting and behavior affects whether, and how, an experience will be repeated (Erfanian et al., 2021; Propst & Koesler, 1998). As such, self-efficacy plays a significant role in an individual's behavior, but self-efficacy is greatly influenced by environment, behavior, and personal factors, hence the term reciprocal determinism (Bandura, 1977; Fang et al., 2021).

This study explored connections and barriers to the outdoors, examining how family and cultural backgrounds influence conceptions of the outdoors and its benefits.

Methods

To explore these factors, five focus groups were conducted at Asbury University in 2020-2021. Diversity criteria were established for participant selection: US and non-US participants with a range of cultural/ethnic backgrounds from urban, suburban, and rural backgrounds. Individuals responded to emails that asked for a diverse group of respondents to discuss conceptions and experiences of the outdoors. Students indicated their backgrounds. Focus groups were selected from respondents according to diversity criteria. Respondents were composed of 27 US and 16 non-US undergraduate students, ages 18-23 years. Represented were 25 males and 24 females (self-identified). Non-US respondents were from 13 countries. Respondents represented rural (15), suburban (16), and urban (20) backgrounds, self-identifying as Non-Hispanic White (25), Black (11), Hispanic White (7), and Asian (8). Respondents chose all cultures/ethnicities they felt applied to them. Of note, Asbury University students are 77% white, 8% Hispanic, 5% Black, 2% Asian, 2% mixed race, 6% international. When looking at cultural conceptions of the outdoors, the culture

of all groups was considered.

Respondents were asked about their connection to the outdoors, local knowledge or expertise regarding the outdoors, their family's connection to the outdoors, attitudes toward the outdoors in their community culture, and had they felt their experience of the outdoors had ever been discounted or privileged based on culture/ethnicity? Thematic analysis of focus group transcripts revealed three themes: 1) factors contributing to connections/barriers to the outdoors, 2) conceptions of the outdoors, and 3) benefits provided by the outdoors. The transcripts were coded again using these themes as codes.

Results

Qualitative content analysis revealed that, within the focus groups, barriers and connections to the outdoors were influenced by:

Table 1

Factors Contributing to Connection with the Outdoors

Presence of Others	Family Attitudes	Cultural Attitudes	Familiarity with Outdoors	Proximity to Outdoors

Regarding what participants considered the outdoors to be, the answers were varied and broad. Initially, many participants confined their answers to more Western conceptions of the outdoors as untouched, non-human-inhabited, and undeveloped spaces (Kaye et al., 2022). When encouraged to think about their own personal experiences of the outdoors, participants expanded their accounts to include urban, suburban, rural agricultural, and more traditional outdoor spaces.

In terms of benefits that the outdoors provides, the following factors emerged within the focus groups:

Table 2

Benefits the Outdoors Provides

Connection with People	Knowledge	Adventure	Gratitude, Humility	Inspiration, Awe

Discussion

SCT's central premise of reciprocal determinism maps to participant responses. Behavior generates beneficial experiences (e.g., community, knowledge) that shape cognitive processes, such as self-efficacy and expectations, which then influence subsequent actions. Personal factors like family and cultural backgrounds shape attitudes and definitions of the outdoors. Environmental factors like accessibility, familiarity, and presence of others are situational influences on outdoor experiences. Self-Efficacy is particularly relevant in the responses since many barriers to outdoor participation stem from confidence issues related to cultural background, unfamiliarity with spaces, or lack of role models. Observational learning connects to the "presence of others" in that people learn outdoor behaviors and attitudes by watching others, often people of similar cultural backgrounds (Walter et al., 2010).

Findings reveal that all participants use the outdoors, but there are ways of using it that may not be understood or recognized by other cultural groups. All respondents recognize that family and community cultures are important mediators between them and their approach to the outdoors, e.g., does their family/culture value hiking vs golf, or fishing vs urban exploration? Cultural barriers

include statements like “My people don’t do that,” or “We do the outdoors. It just looks different.” Individuals of certain ethnic groups mention factors specific to their ethnicity that influence their experience of the outdoors, such as colorism among people of African and Southeast Asian descent, and safety in the outdoors among African American individuals.

There are not remarkable differences in outdoor use between US and non-US students. A few international students note a more pronounced camping culture in the US than in their home country, and this influence normalized activities like hiking and camping for them.

Implications for use include helping individuals explore family and cultural conceptions of the outdoors and how these may pose barriers to and create opportunities for outdoor engagement. Participants express that building community with others is a key benefit of outdoor experiences for them. Finally, understanding cultural differences in how the outdoors is perceived and used provides legitimacy to the distinct ways various cultural/ethnic groups imagine and model outdoor experiences.

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Autoethnography as Pedagogy in a Wilderness Literature Seminar

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Background

The goal of this study was to explore the utility of autoethnography as a pedagogical tool in a wilderness literature seminar. Adams et al. (2022) note that "autoethnographers engage in 'memory work': They use meaningful artifacts … formative and often challenging life experiences, and sometimes interviews with others to reflect on, record, and report our experiences living through time, space, and circumstance" (p. 3). Adams et al. (2022) also note that autoethnographers often share intimacies and vulnerabilities in recounting experiences and situations that have shaped them. We share these stories in hopes of disrupting silences and complacencies around uncomfortable issues both within ourselves and in the broader communities around us. Adams et al. (2022) state: "Autoethnographers use their experience to describe, and some times critique, cultural beliefs, values, practices, and identities…" (p. 3). As such, autoethnography is aimed at unifying the personal and the social and cultural. Referring to critical autoethnography as an emerging framework within the field, Adams et al. (2022) note that autoethnographers often "challenge injustice and unequal power dynamics by creating … 'intersectional' accounts – stories that consider aspects of (often marginalized) identities…" (p. 11). In doing so, autoethnographers essentially ask readers "to consider how prominent and insidious systems, institutions, and discourses privilege some people and marginalize others" (p. 11). Sikes (2022) notes that autoethnography can be seen as a form of existential practice in which the process of interrogation inherent in autoethnography can change our understanding of ourselves as well as the way that we perceive and relate to the world around us.

A fundamental question that should be asked when teaching others about environmental history concerns the stories that we tell ourselves in making sense of our relationships with the natural and cultural landscapes around us. This is a question that I have challenged myself to address in my work as a university professor teaching in the field of outdoor recreation and education. This question is significant not only because the stories that we tell ourselves about these relationships deeply influences our image of ourselves. More importantly, these stories influence the images that students will come to hold in defining their relationships with the natural and cultural landscapes around them and the stories that we collectively tell ourselves as a broader society in defining these relationships.

This study focused on how these stories take shape within the context of a Wilderness Literature seminar that I regularly teach at my university. As it relates to the use of autoethnography as a pedagogical tool, the purpose of this study was threefold: 1) to examine the utility of autoethnegrophy as a pedagogical tool in helping students situate themselves within the broader social and cultural discourse embodied in literature assigned in a Wilderness Literature seminar; 2) to examine the extent to which students are able to explore and reflect on their personal identities vis-à-vis this broader social and cultural discourse using autoethnography as a pedagogical tool; and 3) to demonstrate ways in which these reflections contribute to a process of reflexive praxis (Magill, 2021) as students engage with the literature explored in the course. I am relying on post-structural notions of self (Weedon, 2004) and Foucauldian discourse analysis (Kahn & MacEachen, 2021; Marshall, 1997) in conducting the study.

Methods

The wilderness literature seminar that served as the context for this study aims to engage students in an examination of the significance of wilderness in American history and culture

through selected literary works. Readings include authors such as Henry David Thoreau, John Muir, Aldo Leopold, Edward Abbey, Mary Oliver, Robin Wall Kimmerer, and others who have shaped this literary canon. Roderick Nash's *Wilderness and the American Mind* (2014) serves as a central text. One of the overarching goals of the course is to explore how understandings of wilderness have changed over time vis-à-vis the changing environmental conditions and sociocultural views through which the concept historically has been framed. Further, the course seeks to engage students in reflection on the viability of the concept of wilderness in the 21st century and beyond. Can the concept of wilderness as traditionally conceived remain viable under current and emerging environmental conditions? If not, what should be done with the concept of wilderness moving into the future? Two course learning outcomes that align most closely with the aims of the study include the following: first, students are expected to reflect on their own relationships with the natural world and the significance of wilderness in their lives; and, second, students are expected to critically examine wilderness through non-Western cultural perspectives, including those of Indigenous peoples around the world.

As we begin our initial discussions about the meaning of wilderness, I invite students to reflect on their positionality in relation to the literature we explore by offering an autoethnographic account of my own personal and professional identities – and sense of self – in relation to the broader social and cultural discourses through which our nation's heritage is framed. I tell an origin story rooted in my family heritage to illustrate the tension that I embody with respect to competing narratives surrounding the concept of wilderness. This tension reflects the juxtaposition between a heroic narrative I inherited from my family, and that prevailed in public discourse for centuries, and more recent critical narratives that challenge and complicate this legacy. The central question becomes how to reconcile these conflicting stories, particularly within the politically charged climate in which we now live. I then encourage students to examine the extent to which historical conceptions of wilderness – both Old World perspectives and more contemporary Transcendentalist views (Nash, 2014) – inform their own values and beliefs about wilderness. I also ask them to consider how these views may have been inherited through their own family legacies.

Results & Discussion

Although data collection and analysis are still in progress, preliminary findings revealed considerable variation in students' awareness of their family lineages. Many students were either unaware of or only vaguely familiar with their ancestral roots. However, others were very aware of their heritage based on stories shared by parents and relatives. Several students used the exercise as an opportunity to investigate family histories they had never previously explored, uncovering ancestors who had played notable roles in the nation's early development. Some students were unable to identify their lineage at all and instead drew on other sources of inspiration to inform their reflections. Notably, even those who could trace their family histories back to the region's earliest settlers did not always feel a meaningful connection to these ancestors and did not perceive their family legacies as influential in shaping their own perspectives.

As noted, data collection and analysis are still in progress. A more detailed analysis and discussion of the study's findings will appear in the forthcoming research presentation at the 2026 CEO Research Symposium.

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Exploring the Role of Touch Perception, Thermo-reception, Proprioception, and Force Detection in Outdoor Behaviors that Promote Nature Connection

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Background

A growing scientific literature has documented the positive health effects of spending time outdoors. For example, appreciative outdoor activities such as walking and dog-walking, birdwatching, picnicking, and foraging can restore attention, as measured by improved concentration and cognitive performance, perhaps due to the feeling of escape from the daily grind and the effortless fascination (Basu, Duvall, & Kaplan) elicited by elements in the natural environment (e.g., birdsong, moving clouds, the sweet odor of honeysuckle). Outdoor camping, under specific conditions (Stothard et al., 2017), can reset circadian rhythms toward improved ecological synchronization. The biomechanical loading that results from physically intense outdoor activities such as yardwork, gardening, and adventure recreation (e.g., skiing, surfing, rock climbing, mountain biking, white-water kayaking and so on) can promote bone health (Ryan & Shaw, 2015).

Selective Literature Review

Prolonged contact with the natural world may also be associated with less obvious health benefits. This presentation focuses on exploratory research that attempts to understand how the "hidden" senses—tactile perception, thermo-reception, proprioception, and graviception—can contribute to nature connection and, possibly, self-transcendent positive emotions. Specifically, research shows that walking barefoot outdoors is usually a positive sensory experience associated with greater nature connection compared to walking outdoors shod, and, additionally, generates feelings of freedom, relaxation, and happiness (Harvey et al., 2016). Consistent (thermoreceptor) exposure to adverse weather is associated with more time spent outdoors and enhanced self-reported comfort with hot and cold weather (Harvey & MacPhee, 2021). Vestibular (balance organ) stimulation during adventure recreation (Harvey, 2025) may help explain how adventure recreation can reduce the rumination (repetitive thinking about negative feelings and distress and their causes and consequences; Moreton et al., 2022) associated with anxiety and depression (Olatunji et al., 2013) by promoting awareness of internal states and surroundings as found with other mindfulness practices (Li et al., 2022; Perestelo-Perez et al.). The enhanced mindful awareness of sensory input and surroundings during adventure recreation may also replace rumination with positive psychological experiences (immersion in the present moment, expanded attention and flow) and ultimately produce a state of self-transcendent positive emotion (e.g. awe, gratitude, feeling connected to something larger than oneself). Frequency of gardening predicts ecospirituality (a reverential respect for Earth; Harvey, Bowman, & Karr, 2021) and therefore suggests that outdoor gardening, and all its attendant sensory stimulation, may promote healing, hope, and coping with grief.

Discussion and Conclusion

Spending lots of time outdoors means prolonged sensory contact with outdoor elements that can have cumulative, lasting, positive effects on well-being. While visual, auditory, and chemical senses are important, the "hidden" senses are also important (touch, temperature, proprioception, and force detection) in the accumulation of the health benefits of nature connection. Outdoor barefootedness, intentionally stimulating the body to thermoregulate, managing unusual forces during adventure recreation, and close physical and emotional caretaking contact with gardens (broadly defined) can all promote health and nature connection.

Curiously, all those activities can also cause pain. As a result, one tentative overarching conclusion regarding the role of the "hidden" senses in promoting health and nature connection is that some vulnerability and pain may be inevitable to fully experience all the benefits of nature connection. It sometimes requires pluck to go outdoors and be exposed to the elements, but, according to research, a positive mindset, some encouragement, and good company helps make it happen.

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Nature-Based and Immersive Interventions to Enhance Socio-Emotional Competencies in School Bullying Victims: A Scoping Review

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Background

Bullying is a pervasive problem that undermines the emotional and social wellbeing of children and adults. Victims often experience anxiety, depression, and diminished self-esteem that can persist long after the bullying ceases. Traditional counselling and cognitive-behavioural approaches can be beneficial but may not fully address victims' needs. Experiential learning, including nature-based interventions (NBIs) and immersive technologies have gained attention as alternative or complementary strategies for healing and resilience. NBIs involve programmes, or activities that deliberately engage participants with natural environments to improve physical, mental, and social health. Such interventions range from forest schools and wilderness therapy to ecotherapy and green exercise. Evidence suggests that time spent in nature lowers levels of depression, and anxiety and enhances social wellbeing (Ewert et al., 2021; Shanahan et al., 2019). Immersive technologies that incorporate nature such as virtual reality (VR) (Badger et al., 2023) provide realistic simulations that enable participants to experience events from a first-person perspective in a safe and controlled environment. This use of VR has been shown to increase empathy and build coping skills and has emerging applications in social–emotional learning.

This scoping review aims to map the existing literature on NBIs and immersive approaches that target socio-emotional competencies among people who have experienced bullying. It addresses the question: What is known about nature-based interventions and immersive approaches designed to enhance socio-emotional competencies in victims of bullying? By synthesising this evidence, we hope to inform future research, program development, and policy.

Methods

Scoping review framework

We authors followed Arksey and O'Malley's (2005) five-stage methodology for scoping studies, incorporating clarifications and recommendations from subsequent scholars. The stages include: (1) identify the research question; (2) identify relevant studies; (3) study selection; (4) chart the data; and (5) collate, summarize, and report the results.

Identifying the research question

Scoping studies aim to address broad questions while maintaining clarity of purpose. Following Levac et al.'s (2010) guidance, we combined a broad question with a clearly articulated scope defining the concept, population, and outcomes. Our concept included NBIs—programmes engaging participants with natural environments—and immersive technologies incorporating nature such as VR. The population scoped included individuals of any age who have experienced peer victimization. Outcomes sought were socio-emotional competencies, including empathy, emotional regulation, self-esteem, social skills, and resilience.

Identifying relevant studies

Databases searched were PubMed/MEDLINE, PsycINFO, Web of Science, Scopus, ERIC, CINAHL, and Cochrane Central. Grey literature sources included ProQuest Dissertations & Theses, Open Grey, conference proceedings, and reports from government or non-government organizations. Search terms combined controlled vocabulary and keywords related to bullying

(bullying, peer victimization), victims (victim, target), interventions (nature-based, green exercise, forest school, wilderness therapy, ecotherapy, virtual reality, immersive, 360-degree video), and socio-emotional outcomes (social skill, emotional competence, empathy, resilience). No date restrictions were imposed; only English-language publications were considered due to resource constraints.

Study selection

Titles and abstracts retrieved from the search were screened independently by two reviewers. Full-text articles were assessed against inclusion criteria: (i) the population comprised bullying victims; (ii) the intervention was a nature-based or an immersive approach intentionally designed to improve socio-emotional outcomes; (iii) socio-emotional competencies were measured; and (iv) the study reported empirical data.

Charting the data

A data-charting form was developed collaboratively and piloted on a sample of studies. Variables extracted included bibliographic details, study design, theoretical framework, participant characteristics, intervention type and details, socio-emotional outcomes measured, key findings, and implementation considerations. Two reviewers independently extracted data from the first ten studies and refined the form for clarity, and completeness. Subsequent extraction was divided between reviewers, with random cross-checks to ensure accuracy.

Collating, summarising and reporting results

Following Arksey and O'Malley's (2005) guidance, we plan to summarize data through descriptive numerical analysis and thematic synthesis. We will quantify the number of studies by intervention type, population, outcomes, and study design. Qualitative data (e.g., authors' interpretations, participant narratives) will be coded inductively and grouped into themes related to how interventions influence socio-emotional competencies. We will also consider implementation factors such as accessibility, cost, and participant engagement. Consultation with stakeholders—including educators, youth workers, wilderness therapy practitioners, and bullying survivors—will be undertaken after preliminary synthesis to validate the findings and identify practical considerations. The review will be reported according to the PRISMA-ScR guidelines.

PRISMA flow summary and search strategy

The initial search combined controlled vocabulary and keywords such as bullying, peer victimization, victim or target, nature-based, green exercise, forest school, wilderness therapy, ecotherapy, virtual reality, immersive and 360-degree video, and socio-emotional outcomes such as social skills, emotional competence, empathy, and resilience. The authors also used the following keywords- bullying/victimization (e.g., "peer aggression," "harassment," "cyberbullying," "school violence," "target," "survivor"), intervention (e.g., "programme," "therapy," "training," "treatment," "workshop"), nature-based interventions (e.g., "greenspace therapy," "horticultural therapy," "adventure therapy," "outdoor education," "park," "garden programme"), immersive technologies (e.g., "augmented reality," "mixed reality," "extended reality," "360-degree video," "digital simulation,", "serious games"), and socio-emotional competencies (e.g., "emotional regulation," "self-regulation," "self-efficacy," "self-esteem," "interpersonal competence," "coping skills"). Including these terms helped ensure that relevant programmes and technologies aimed at bullying victims are not overlooked.

Summary

Victims of bullying often struggle with self-esteem, emotional regulation, and social relationships. NBIs and immersive approaches represent a forward-looking, holistic response to the psychosocial impact of school bullying. Integrating these modalities into prevention and

intervention frameworks could enhance emotional resilience, and social wellbeing for affected individuals. Collaborative efforts between researchers, practitioners, educators, mental health professionals, and policy makers will be critical to advancing this field and ensuring that evidence-based, inclusive, and scalable solutions are developed to support individuals recovering from bullying victimization.

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An investigation into Outdoor Adventure Program Participant's Sense of Community and Resiliency

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Background

Outdoor Adventure Programs (OAP) often include experiences, such as backpacking, climbing, canoeing, and many other forms of outdoor activities. While the program size, duration, and specific activities can vary greatly, the outcomes experienced while participating in OAPs are often positive and long lasting (Daniel et al., 2022; Hattie et al., 1997). OAPs provide opportunities for participants to be challenged including interpersonal challenge (e.g. group conflict), physical challenge (e.g. climbing to the top of a tall mountain), and intrapersonal challenge (e.g. anxiety and changes in normal day-to-day activities). Challenge can serve as a catalyst for personal growth and group cohesion. Additionally, there is evidence that resiliency (Davidson & Ewert, 2024; Talley et al., 2023) and Sense of Community (SOC) (D'Amato & Krasny, 2011; Richard & Sibthorp, 2019) can be cultivated through multi-day experiences, which include various challenges. Developing resilience is a key strategy for navigating the demanding and often stressful experiences associated with OAP participation (Davidson & Foster, 2024). OAPs often require participants to engage in challenging situations which allow learning opportunities that can foster resiliency (Allan et al., 2025). SOC also plays a key role in OAPs, which require strong group communication and collaboration and have been shown to increase SOC among participants (Asfeldt et al., 2017; Hall & Jostad, 2020). One way that OAPs increase participants' SOC is by facilitating longer, multi-day experiences (Hattie et al., 1997). Whereas it would be more difficult to gain a sense of group cohesion in a single day, multi-day experiences allow participants greater opportunity to create and strengthen community, challenge each other, and develop individual resiliency (Daniel et al., 2022; Talley et al., 2023).

OAPs provide experiences that have been shown to contribute to an increase in resiliency and SOC among participants (Allan et al., 2025; Hall & Jostad, 2020). These outcomes are particularly significant for adolescent participants while they navigate the lingering effects of a global pandemic and rises in mental health crises (Allen et al., 2025, Talley et al., 2023). However, a review of the literature did not reveal any studies exploring resiliency and SOC together as program outcomes in the context of a multi-day OAP experience and high school population. Therefore, the purpose of this study was to explore how participation in a multi-day outdoor adventure program impacted participants' Sense of Community and resiliency.

Methods

This mixed methods study was conducted in partnership with Mountain Alliance, an OAP integrated within Watauga High School in North Carolina, on their two-week summer expedition called Rolling Academy. The study sample (n = 10) were high school students ranging in age from 14 to 18.

Pre/post surveys and a follow-up focus group interview were used to better understand the impact of program participation on students after they had returned to school the following academic year. The survey consisted of two quantitative scales: the Sense of Community Index 2 (SOC Index 2) (Chavis et al., 2008) and the Conner-Davidson Resilience Scale 25 (CD-RISC 25) (Connor & Davidson, 2003). These scales have been used in other OAP related studies and have

been found effective with similar older adolescent populations (Allen et al., 2025; Asfeldt et al., 2017). Several open-ended questions were also included on the survey including "What were the most challenging parts of Rolling Academy?" and "What did you gain from this trip that can help you with a challenging situation?" Surveys were administered a week prior to the expedition and on the final night of the expedition. Following the survey data collection in June 2025, a focus group interview was conducted with eight of the ten Rolling Academy participants in October 2025 to further explore the impact of the program three months after participation.

Quantitative data was analyzed using paired sample *t*-tests to examine changes from pre to post scores on the SOC and resiliency scales. Given the small sample size, it is important to note our intent was not to generalize findings for all OAPs but rather to provide an exploratory look into the work of Mountain Alliance. Qualitative data was analyzed using descriptive etic coding, as outlined by Saldana (2013), to identify themes across participant responses and focus group transcript. The focus group audio recording was first transcribed and was analyzed by coding the responses to each question and then identifying summary themes and representative quotes.

Results

Following the recommendations for analysis for the SOC Index 2 (Chavis et al., 2008) and CD-RISC 25 (Connor & Davidson, 2003), results for both quantitative scales are reported using the total scores across participant responses. Both scales were scored by taking the sum of all individual question scores. For the SOC Index 2, the difference in total scores (pre mean = 54.4, sd = 11.41 and post mean= 56.5, sd = 8.26), was non-significant; $t(9) = 1.02$, $p = 0.34$. For the CD-RISC-25, the difference in total scores (pre mean = 69.5, sd = 14.28 and post mean= 73.2, sd = 11.17) was also non-significant; $t(9) = 1.74$, $p = 0.12$. While visual inspection of the total scores seems to indicate an increase in both SOC and resiliency scores, neither increase was statistically significant.

Across the open-ended pre-survey responses, *patience with others* and *leadership* emerged as the main themes in which half or more of the participants discussed. For *patience with others,* one participant shared that "being in close quarters with a lot of people I don't know very well would be a challenging part of the expedition." For *leadership,* one participant shared they expected to gain "the ability to be a leader but also the ability to step back and not always take control." When considering the post survey responses, *patience with others* and *confidence* were the main themes that emerged. For *patience with others,* one participant shared "dealing with frustrated people was the most challenging part of Rolling Academy but I overcame this by writing and taking long breaks away from those people." For *confidence,* one participant shared that they "gained perseverance and flexibility from day to day where I feel like before this trip, I needed a solid structure every day and being put into a situation where I couldn't have that made me less stressed."

Five major themes emerged from the focus group interview: *community*, *service*, *resiliency*, *participant wellbeing,* and *beauty of nature*. When discussing *resiliency,* one participant shared "I was really nervous about going on the trip because I knew the staff and I knew they would push me out of my comfort zone and make me talk to people, but it's been really great since the trip, because I've noticed that my ability of talking in front of people or talking to people has really improved. It was difficult at the beginning of the trip, but I got to know people well, and it was a great experience." When discussing their thoughts on *community*, another participant shared, "not sure if Rolling Academy changed my sense of community, but I feel like it really reinforced it. The idea is that there's this group of people that are so very

different than you, but in these types of scenarios you realize that a lot of people are actually very similar to you." Throughout the focus group interview, participants alluded to Rolling Academy reinforcing the themes of *resiliency* and *community.*

Three additional themes emerged from the focus group interview and survey responses including *service, participant wellbeing,* and *beauty of nature*. Throughout the focus group interview, the theme of *service* connected to the theme of *community.* Several participants referred to the service opportunities as some of their favorite parts of the trip that brought the group closer together. One participant said, "the best thing I find in service is community." *Participant wellbeing* emerged as students shared that while being on this multi-day experience they needed to take space, use self-care techniques, and engage in self-processing. One student realized "that all I can control is me and what I personally do myself, and everything else is out of my control." The final theme of *beauty of nature* was a throughline throughout the focus group responses. Participants mentioned that many of their favorite moments were seeing the night sky with no light pollution, visiting a variety of State and National Parks, and seeing snowcapped mountains in June.

Discussion and Recommendations

The findings of this study are consistent with previous research which shows the positive impact OAPs have on participant SOC and resiliency (Asfeldt et al., 2017; Davidson & Foster, 2024). Two of the five themes that emerged in the qualitative data (*community* and *resiliency*) were the focus of this study and commonly recorded among participant responses while the other three (*service*, *student wellbeing* and *beauty of nature*) emerged as new or unique from participant responses. The themes of *service*, *student wellbeing* and *beauty of nature* are also consistent with prior OAP research (Banaag & Stuhr, 2023; Talley et al., 2023).

The current study adds to the growing literature on OAPs by looking at the concepts of SOC and resiliency through the lens of older adolescent participants. Given the small sample size, it is important to note our intent was not to generalize findings for all OAPs but rather provide an exploratory look into the work of Mountain Alliance's Rolling Academy expedition and related participant growth. Other limitations for this study include the two perspectives missing from focus group interview participants who were on the trip but unable to participate in the interview as well as potential researcher bias as a former employee of Mountain Alliance. Future research employing a larger sample size and a greater diversity of OAPs working with an older adolescent population would provide a better understanding of the importance of SOC and resiliency in outdoor adventure programming. Future research could also consider the connection between service and its influence on SOC among OAP participants.

The themes of SOC and resiliency found in this study are important for the development of adolescent participants and their future in this world. This study and its findings provide program managers, instructors, and researchers additional insight in the development of resiliency and SOC from OAP participation, particularly within multi-day experiences serving older adolescents.

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Sail Training: Investigating Youth Perspectives and Process Factors in Positive Youth Development

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Sail training programs have been widely used as outdoor adventure education experiences, offering unique opportunities to promote social, emotional, and psychological growth in adolescents (Blum et al., 2024: Schijf et al., 2017). Grounded in the Positive Youth Development (PYD) framework (Lerner et al., 2005) and guided by experiential learning theory (Priest & Gass, 2017), this study explores how participation in wilderness enrichment at sea experiences shape youth outcomes. While PYD outcomes in youth participants on sailing voyages have been documented in the previous literature (Schijf et al., 2017), there is a lack of research that looks specifically at the factors that influence participant learning and growth during sailing outdoor adventure experiences. Tucker and Rheingold (2010) stress that assessing both what programs achieve and the processes by which they achieve them are integral program evaluation and improvement. Hence, this convergent mixed methods study (Creswell, 2015) measured the impact of a youth sailing program on PYD outcomes and explored the process of the voyage from youth's perspective by incorporating the Adventure Therapy Experience Scale (ATES) (Russell et al., 2017) and in-person focus groups. Together, these quantitative and qualitative data provide a fuller understanding of PYD in sailing experiences, an under-researched area of inquiry in outdoor adventure education in United States contexts. Our research questions include: 1. What program factors as reported by participants were most prominent as measured by the ATES?; 2. What is the relationship between program factors and increases in PYD post program? 3. What were youth participants' perspectives on the impact of this sailing program? 4. In what ways do youth perspectives provide insight into the relationship between sail training program components and the process of PYD?

Methods

Procedures

As part of the intake process for voyages, parents were asked for consent and youth for assent prior to data collection. For those who agreed to participate, data were collected on the final day of each voyage by the Program Director, who was not a part of the voyage leadership, but came upon the boat on the last day of the trip to collect data and facilitate the focus groups. This study was approved by the Institutional Review Board at the University of New Hampshire.

Quantitative Data Collection and Analysis

Eighty-one youth completed the Positive Youth Development Sustainability Scale (PYDSS) which is a 40-item self-report scale measuring seven core domains—Happiness, Caring, Connection, Contribution, Confidence, Competence, and Character (Sieng et al., 2018). This scale has a retrospective pretest; hence youth completed the measure only at the end of the trip (Blum et al., 2024). The Adventure Therapy Experience Scale (ATES) is a 20-item self-report tool evaluating participant perceptions of five therapeutic factors in adventure-based experiences including Intrapersonal, Interpersonal, Nature immersion, Challenge and Reflection (Russell et al., 2017). Each factor's responses range from 0 to 10, with 10 representing the highest role for that factor.

To look at the overall impact of the voyages on youth's PYD, paired samples t-tests were conducted between retrospective mean pre scores and post scores for the Total PYD score as well as the six subscales. These analyses included Bonferroni corrections to limit Type 1 error as well as calculated effect sizes (Cohen's d). Change scores were then calculated (post – pre means), for all PYDSS measures and correlations were run between PYDSS changes scores and each of the five ATES factors to see how each factor was associated with PYD outcomes.

Qualitative Data Collection and Analysis

Additionally, we conducted five in-person, post-trip focus groups with 49 youth ages 13 or older to understand how they experienced the sail training voyage. There were more female identifying youth (61.3%) than male (37.5%) with one youth identifying as non-binary. Most youth participants identified as White (85.9 %), with the rest identifying as Black (n = 1), Asian (n = 2), and Mixed (n = 7). Some focus group questions asked included, "What skills or lessons have you learned on this trip?" "From your perspective, what was the most impactful part of the voyage?" Focus groups were audio recorded and transcribed. As outlined by Braun and Clarke (2019), a hybrid inductive-deductive thematic analysis was used to analyze the focus group data by four main researchers with the use of AtlasTi qualitative software.

Data Integration

Following a convergent mixed methods design (Creswell, 2015), we collected and analyzed qualitative and quantitative data separately, then integrated them to gather more holistic insights into the process of PYD on a sailing trip. We investigated qualitative themes in relation to the five ATES factors to understand where there were convergence and divergence between our quantitative and qualitative findings.

Results

PYDSS

As shown in Table 1, youth reported significant increases across all PYD measures, with moderate to strong effect sizes across measures (d = .54 - .85).

Table 1: PYDSS Data (N = 81)

	$M_{retropre}$ (SD)	M_{post} (SD)	M_{diff}	*t*	Cohen's d (CI)
Competence	19.64 (2.62)	20.70 (2.71)	1.06	7.39***	.83 (.57-1.1)
Character	21.70 (2.18)	22.80 (1.71)	1.10	6.76 ***	.76 (.51-1.0
Connection	20.77 (2.42)	21.94 (2.25)	1.17	7.62 ***	.85 (.59-1.1)
Caring	21.36 (2.44)	22.41 (2.19)	1.05	6.86 ***	.76 (.51-1.0)
Confidence	19.90 (3.32)	20.61 (3.59)	.71	4.85 ***	.54 (.31-.78)
Contribution	19.53 (2.71)	20.65 (2.78)	1.13	7.10 ***	.79 (.54-1.0)
Happiness	20.99 (3.03)	61.66 (2.84)	.67	5.51 ***	.60 (.37-.86)

***p < .001, Bonferroni corrected

ATES and PYDSS

Youth participants reported that the most significant impact of the voyage as measured by the ATES was associated with Nature (M = 8.7, SD = 1.4) (possible range 0-10), followed by Interpersonal (M = 8.3, SD = 1.4), and Intrapersonal (M = 8.0, SD =1.6). The lowest scores were for Reflection (M = 6.5. SD = 1.7) and Challenge (M = 5.3, SD = 1.3). To investigate the relationship between ATES scores and positive changes in PYD scores, correlation analyses revealed statistically significant positive correlations (p < .01) between the ATES Interpersonal subscale and increases in Competence (r = .39), Character (r = .32), Confidence, and

Contribution (r = .40). Additional significant correlations were found between the ATES subscale Intrapersonal and Competence (r = .31), and Character (r = .26), and Connection (r = .26), and Confidence (r = .36) and Contribution (r = .32); and between the ATES Subscale Reflection and Competence (r = .28), and Caring (r = .30), and Confidence (r = .31), and Contribution (r = .36), and Happiness (r = .33). No significant correlations were found between the ATES Subscales of Reflection and Challenge and any increases in the PYD subscales.

Focus Groups

Three qualitative themes emerged from youth focus groups that provide nuanced insight into how students experienced this sailing program in relation to the quantitative findings. Across focus groups, youth reflected on how this voyage compared to their experiences in more "traditional" summer camps. They underscored the sizable role of how collectively operating the *Shenandoah*—a novel, nature-immersive experience rife with social, emotional, and physical challenges, paired with opportunities for reflection—contributed to their growth.

Meaningful Hands-On Learning in Nature

Living and working aboard a tall ship introduced youth to a unique form of immersive outdoor learning grounded in a deep appreciation of nature and collaborative action. Participants engaged in physical tasks to collaboratively run the vessel. Participant B explained, "There was always a place to help out. Everyone hoisted up the sails together. It was impactful to see how we all made the boat run." Youth leaned into this novel and tangible form of hands-on learning, which helped them feel more connected with surrounding ecosystems and their work. Participant C said, **"**I really enjoyed getting to spend like the whole week outside...every single morning you wake up and the first thing you do is like, you go outside, and you wash the deck."

Interdependence

Unlike traditional social environments, the proximity aboard the vessel and the collaborative demands of maintaining the ship facilitated interdependence between youth. Participants repeatedly highlighted how working, eating, sleeping, and relaxing in shared spaces was challenging, but nurtured trust, social connection, learning, and belonging. Participant A summarized, "there's no way to force you to be friends with everybody...but everyone on the boat with you is all you have. Like, you have no electronics, nothing, so it kinda forces you to become a family."

Intrapersonal Development

Additionally, participants reported enhanced self-awareness, mindfulness, and gratitude, often linked to the program's slower pace, reduced distractions, and unstructured time. Participant H reflected that the experience allowed them to "be by myself or like, just kinda like sit quietly and stuff. And, it was kinda nice to just, yeah, take time to yourself, like on the ocean and not be involved in like everything."

Discussion

This study seeks to advance both theoretical and practical knowledge in adventure education and youth development. By integrating validated outcome measures with process-based assessment (ATES) and participant voices, this mixed methods study aimed to identify *how* and *why* these programs work (Creswell, 2015). Woven throughout participant narratives was the importance of being immersed in nature and engaging in real-world, concrete tasks that contributed to individual and collective accomplishments. The ATES factors of Nature, Interpersonal, and Intrapersonal were related with increases in multiple areas of PYD. Qualitative themes related to interpersonal, intrapersonal, and nature immersion were closely aligned with the ATES results, triangulating the findings. Scores for challenge and reflection

were lowest as measured by the ATES. However, these elements were highlighted in the focus groups as impactful for their interpersonal and intrapersonal growth and nature connectedness. Youth responses revealed how they perceived challenge in relation to physical discomfort from sleeping on the boat, navigating communication with peers in close quarters, and learning to be present and with themselves without technology as a distraction. These challenges did not align with the ATES measurement which uses prompts including: "I was pushed beyond my limits" and "I felt emotionally exhausted." Additionally, they may not align with how adolescents view challenges in relation to sail training programs. This supports recent literature that asks outdoor adventure educators to rethink the role of challenge including what constitutes challenge and if it is essential for development (Mitten & Whittingham, 2009). Are there different ways youth experience challenge in sail training programs that are meaningful for positive youth development? Additionally, ATES scores related to reflection were low, which was surprising given students' emphasis on the importance of unstructured time for mindfulness. However, the ATES prompts measuring reflection were methodologically limited with double-barreled phrasing like "I enjoyed the simple beauty of being in nature and reflecting on my life," which could have affected how youth responded.

While previous research regarding the unique contributions of sail training as an outdoor adventure education program for PYD is limited (Blum et al., 2024), this exploratory study provides insight into what effects sail training has on PYD and the processes through which engaging in this specific outdoor adventure education activity contributes to those outcomes that can help guide programming and policy. Additionally, qualitative findings provide insight into how quantitative instruments can more effectively measure how students experience and perceive what challenges and reflection are and how they contribute to their positive development.

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What Do You Mean I Can't Bring My Phone?: Assessing the Impact of an Electronic Device Policy for Extended Outdoor Experiences

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Introduction

Smartphones and other mobile electronic devices are commonplace. They can make our lives easier and more convenient. They can also create problems as excessive use has been associated with a variety of health problems and negative social, psychological, and behavioral effects such as sleep disturbance, depression, anxiety, low emotional intelligence, poor academic performance, risky and problematic behaviors (Nishad & Rana, 2016). Smartphone usage among teenagers has exploded in the past decade According to a Pew Research Center Survey (2024), 95% of U.S. teens aged 13 – 17 have access to a smartphone device and perhaps what is more alarming nearly half (46%) of them report being online 'almost constantly.' From 2015 to 2021, total daily entertainment screen use among 13 – 18 year olds increased by two hours, from 6 hours 40 minutes to 8 hours 39 minutes (Rideout et al, 2022). That's a lot of screen time. So, what happens when that mobile smartphone device is unavailable?

Nomophobia is a term derived from NO MObile PHOne phoBIA which is a fear of being out of mobile phone contact. Although the name implies a 'fear,' it is largely viewed as an anxiety disorder resulting from being unable to maintain connectivity with friends and family (Bhattacharya et al., 2019). Persons experiencing nomophobia may experience stress, anxiety, or panic when their device is not with them. It is important to note that there is debate about whether nomophobia is a phobia, anxiety disorder, lifestyle disorder, or addiction, and it is not currently a formal diagnosis in the DSM-V (Bragazzi & Del Puente, 2014). A systematic review by Al-Mamun et al (2025) found college students to exhibit the highest levels of nomophobia, compared to adolescents and young adults, suggesting a need to "implement program designed to help reduce the social and health-related burdens associated with nomophobia."

The aim of this study was to assess the impact of an electronic device policy – which prohibits students from having electronic devices during their two-week field experience – on college students enrolled in a two-week field-based outdoor education course. The impact of the policy on students was measured using an adapted version of the established and widely used Nomophobia Questionnaire (NMP-Q; Yildirim & Correia, 2015). Results will be used to inform future policy and course content.

Methods

Students enrolled in the Outdoor Adventure Education for Teachers (OAET) course in summer 2025 were asked to complete the NMP-Q survey prior to and immediately following their two-week field experience. The program is specifically designed for college students pursuing a degree in physical education. The course is described as "a theory-based pedagogy course designed to provide an in-depth outdoor adventure education experience for undergraduate physical education majors seeking teaching certification. Required on-campus meetings, experiences and assignments are followed by a resident outdoor experience" (SUNY Cortland).

The NMP-Q (nomophobia questionnaire) is a 20-item questionnaire developed by Yildirim and Correia (2015) to assess anxiety when one is without their smartphone. It is

comprised of four subscales: 1) *not being able to communicate*, 2) *losing connectedness*; 3) *not being able to access information*; and 4) *giving up convenience*. The NMP-Q has been translated into several different languages and has been commonly used to assess symptoms of nomophobia. A meta-analysis of validation studies indicate it has excellent internal consistency (.91 - .95) and there is strong structural validity for the four subscales (Jahrami, et al., 2023).

In addition to the 20-item nomophobia scale, study participants were asked to report how they felt about their recent screen-time usage of a 5-point Likert scale. Demographic information (e.g., major, year in school, race/ethnicity, etc.…) was also collected. The NMP-Q was administered to students upon their arrival at the outdoor education center and again at the end of their two-week program. All electronic devices (phones, laptops, smart watches) are collected and stored for students during the two-week session to ensure electronic devices are not used by participants during the program. Coding was used to match pre- and post-questionnaire data. Data were collected at four separate two-week sessions over the course of the summer 2025. A typical OAET session consists of six-days in a residential camp setting where students develop and practice technical skills and engage in teambuilding activities in preparation for the 6-day off-site wilderness trip. In most cases this consists of a either a canoe/camping experience, a hiking/backpacking experience, or a combination of canoeing and backpacking.

Results

Data were collected throughout the summer 2025. After cleaning (i.e., testing normality, screening for outliers) 158 matched sets were included in the analysis. A majority (76%) of respondents were in their senior year, most (86.7%) identified as White, and 73.4% identified as men while 26.6% identified as women. SPSS was used to compare pre- and post-test scores on the NMP-Q. Results show that there was not a significant change in nomophobia scores from pre- to post-test after the two-week outdoor education class. When pre-test scores (M=3.46, SD=1.06) were compared to post-test scores (M=3.30, SD=1.05) there was a slight decrease following the intervention for the sample as a whole, but it was not significant.

Examining gender, pretest mean scores on the NMP-Q were significantly lower for men (M = 3.34, SD = 1.03) than women (M = 3.78, SD = 1.08), $t(156) = -2.38$, $p = .02$. When comparing pretest and posttest results between men and women, a significant difference was found for *women only* with scores on the NMP-Q decreasing from pretest (M = 3.78, SD = 1.08) to posttest (M = 3.27, SD = 0.94), $t(41) = 2.67$, $p = .01$. Average scores for men were nearly identical pretest (M=3.34) to posttest (M=3.32). A significant effect of *screentime one day before the course* was also found on nomophobia pre-test scores, $F(2, 147) = 4.1$, $p = .018$. A Tukey post hoc test showed a significant difference between the lowest screentime group (M = 3.14, SD = .91) and highest screentime group (M = 3.67, SD = 1.13), with significantly higher nomophobia scores observed in the highest user group. The difference between the lowest and the medium screentime group (M = 3.61, SD = 1.03) approached significance ($p = .058$), with higher nomophobia scores observed in the medium user group. No significant difference was observed between the medium and highest screentime groups.

Discussion

Mobile devices are ubiquitous and the technology available on them is a driving force globally. Smartphones and mobile devices are a powerful and useful tool. They can also be a source of anxiety. Notara, et al. (2021), suggest the need for interventions to combat the increase of nomophobia and negative side effects associated with its' prevalence (e.g., negative psychosocial states, including low self-esteem, and adverse physical effects, such as musculoskeletal problems). In this study, we found that women had significantly higher scores of

nomophobia compared to men immediately prior to a two-week outdoor education course that required them to leave behind their smartphone, indicating women were more anxious about not being able to access their device than men. While men's nomophobia scores changed negligibly when measured post-course, women's scores decreased significantly, lending support for the argument that having spent two weeks without their device women became less anxious about not having it.

Establishing a healthy and balanced relationship with technology in general and smart phones specifically makes sense for everyone. That is easier said than done. For some students, spending two weeks in an outdoor education program is already an anxiety-inducing challenge as it is an unfamiliar environment for many. For women this may have compounded the anxiety they felt about not having access to their smartphone. Requiring students to give up their device for two weeks can add to that anxiety. It also has the potential to help students examine their current relationship with their mobile device and feel less anxious about not having access to it. Results of this study may be used to inform mobile electronic device policy at other institutions specifically, and more broadly provide information on students' perspectives regarding the lack of access to their device during their two-week outdoor education experience.

It is important for everyone to develop a healthy, balanced relationship with technology, especially smartphones. However, this can be challenging. For many students, a two-week outdoor education program is already anxiety-provoking because it is an unfamiliar environment. For women in this study the lack of smartphone access may have intensified that anxiety as observed by their higher pretest nomophobia scores. Requiring students to give up their phones for two weeks can increase short-term stress, but it may also prompt them to reflect on their phone use and ultimately feel less anxious about being disconnected, as results from the women in this study indicated. The findings from this study may help inform mobile device policies at other institutions and, more broadly, shed light on students' perspectives about not having their devices during a two-week outdoor education experience.

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Beyond Entertainment: Exploring Humor as a Response to Stress in Outdoor Education Programming

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This research examines the role of humor, specifically through the lens of Relief Theory, in managing perceived anxiety levels in outdoor settings. The primary focus is on the intentional use of Relief Theory humor by outdoor professionals during stressful scenarios commonly encountered in wilderness and adventure-based programming. Relief Theory, originating in the 18th century, suggests that laughter serves as a release of built-up nervous or emotional energy, functioning like a pressure valve in response to tension or stress.

I enter into this research as both an outdoor educator and a comedian, seeking to explore the intersectionality of these seemingly-disparate fields. Humor has long been a major part of my personal pedagogy, which leads to the desire furthering research in this area. As an undergraduate student in Outdoor Education, this research also informs my professional pathway.

Research Question

To what extent does the use of humor by outdoor professionals, particularly within the Relief Theory framework, impact the response to stressful situations?

How does humor impact perceived anxiety levels in both outdoor professionals and adult participants in outdoor programming?

Literature Review

Outdoor and experiential education can trace its roots back to influential ideas from John Dewey and others. In Dewey's view, "education which does not occur through forms of life, forms that are worth living for their own sake, is always a poor substitute for the genuine reality and tends to cramp and to deaden" the natural impulses and excitement that participants have (Dewey, 1972, p. 87). In more recent years, scholars such as Jay Roberts have further clarified the philosophical orientations of experiential education, especially as compared to other forms of education. As Roberts says, "experiential learning is informal-one can learn through experience in any number of contexts and curriculum situations. Experiential education involves a broader and more systematic pedagogical process" (Roberts, 2016, p. 24).

Building on Dewey, scholars such as Kurt Lewin and David Kolb further refined experiential education theory. Kolb's (1984) experiential learning theory emphasizes a cyclical process of concrete experience, reflective observation, abstract conceptualization, and active experimentation. Itin (1999) expanded on this with a definition of experiential education as a 'holistic philosophy' grounded in critical analysis and learner accountability, where participants take initiative and construct meaning through real world engagement.

In outdoor and experiential education, humor has been recognized as a tool for enhancing engagement and managing emotional intensity. Hoad, Deed, and Lugg (2013) found that humor can strengthen group cohesion, support trust between participants and leaders, and help participants navigate uncertainty. They also caution that not all humor is beneficial, as sarcasm or ridicule may undermine inclusion and safety. The timing of humor is also an important consideration. Graham (2010) explored the subjective experience of spontaneous humour producers in organisational settings and found that humour producers often consciously monitor cues and underlying beliefs, and that their humour use is shaped by role and context. Graham's

findings also found humor producers did not immediately plan their humorous comments but recalled their hopes or intentions only after the fact, during reflective questioning (Graham, 2010).

Morreall (2009) explains Relief Theory as the release of excess nervous energy through laughter, which prevents the escalation of physiological responses associated with fear or anger. In this framework, humor functions as a pressure valve, allowing individuals to discharge tension without resorting to fight-or-flight behaviors. Simione and Gnagnarella (2023) provide empirical evidence that humor coping reduces perceived stress and moderates the negative impact of avoidance-based coping strategies. Their study, conducted during the COVID-19 pandemic, suggests that humor can function as an independent coping mechanism, particularly effective in uncontrollable and stressful contexts.

Together, these studies demonstrate that humor can relieve tension (Morreall, 2009), foster engagement in outdoor education (Hoad et al., 2013), and buffer the effects of stress (Simione & Gnagnarella, 2023), though its intentional use by outdoor professionals remains underexplored. A significant gap exists in the literature examining the intentional use of humor by outdoor education professionals.

Methodology

Theoretical Framework

This research operates under a constructivist paradigm, believing that "we construct knowledge through our lived experiences and through our interactions with other members of society" (Lincoln, Lynham, and Guba, 2011, p. 103). A constructivist paradigm leads to a personal and individual epistemological perspective that says "we cannot separate ourselves from what we know. [H]ow we understand the world is a central part of how we understand ourselves, others, and the world […and] we are shaped by our lived experiences" (Lincoln, Lynham, and Guba, 2011, p. 104).

Constructivism allows for an individual interpretation of the world and recognizes that the ability to make meaning is subjective and personal. The focus on the social construction of knowledge and the importance of the shared experience and interactions between people within a society informed the research questions and the data analysis.

Methods and Participants

This study (Elon University IRB Protocol #25-3281) employed a mixed-methods design incorporating both surveys and semi-structured interviews. The sample includes outdoor professionals and adult participants involved in wilderness or adventure-based programs across the country. Recruitment has occurred through regional outdoor companies such as Inside Out, Haw River Canoe and Kayak Company, and Pura Vida Adventures college-affiliated groups, and online forums for outdoor educators. This group of companies were selected based on company size and program of work (focusing on day trips and a wide variety of workers).

Both outdoor professionals and adult participants completed an electronic survey. Research participants reported an average of approximately 3.7 years of outdoor education experience and collectively represented a wide range of audiences, including Youth (K–8), Teens, College students, Adults, Corporate groups, Therapeutic groups, and other specialized populations. The survey includes quantitative measures of perceived anxiety levels and coping responses, along with open-ended questions regarding the role of humor in the experience. Open-ended survey responses were analyzed using a mixed-methods coding process.

Research participants were invited to participate in a virtual semi-structured interview. Interviews focused on how humor is intentionally used during stressful scenarios, the contextual

factors that influence humor use, and the perceived impact of humor on group dynamics and individual stress responses.

Data was analyzed following a constructivist grounded theory framework, allowing themes to emerge through iterative coding, comparison, and memoing. Combined analysis of survey and interview data helped to capture both professional strategies and participant perceptions of humor's role in stress management within outdoor education settings.

Results and Discussion

Although several themes emerged from the mixed-methods analysis, the two most relevant to the study's focus are stress relief and perspective shifts.

The stress relief code captured how humor helped participants interrupt moments of rising anxiety during challenging outdoor activities. One participant noted that they were "struggling when kayaking, [and] joking about it helped me to stop stressing and readjust to get the hang of it." These descriptions align with Relief Theory's view of laughter as a release of nervous energy, allowing participants to reset emotionally and physically. This pattern also reflects broader research showing that humor can moderate perceived stress in demanding environments.

The perspective shift code reflected humor's role in reframing stressful situations into more manageable or even positive experiences. As one participant explained, "We had a big problem with flooding in our tent…but through humor and bonding with our classmates we were able to find light in the situation." Humor in these moments supported connection, resilience, and a shared sense of problem-solving, which aligns with work describing humor as a facilitator of group cohesion in outdoor settings.

These findings show that humor can serve as both an immediate stress-regulation tool and a mechanism for helping participants reinterpret challenges more positively, ultimately contributing to emotional safety and effective learning in outdoor environments.

Call to Action

This study will expand understanding of humor as a facilitation tool in outdoor education by linking Relief Theory to applied practice. Findings may showcase how intentional humor use can reduce anxiety, improve group resilience, and strengthen professional coping strategies in stressful environments. Results could inform leadership training, program design, and the broader integration of the intentional use of humor into experiential education pedagogy.

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Network Analysis of Outdoor Academic Programs in the United States

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The ability to form and maintain social networks is fundamental to human behavior and critical in professional contexts for collaboration, knowledge sharing, and career advancement. This may be especially true among Outdoor Academic Programs (OAP's) who may rely on professional colleagues and benefit to a greater degree than other professions. Despite the potential benefits, research on the nature of network connections remains limited. This study addresses this gap by examining network connections among Outdoor Academic Programs (OAPs) in the United States, utilizing Social Network Analysis (SNA).

Theoretically this research assumes collectivism benefits OAPs, by offering support, resource sharing, and enhancing knowledge. Strong networks can provide crucial support during funding cuts, risk management incidents, and contribute to increased job satisfaction (Mundt & Zakletskaia, 2019). However, prior work (Horner, as cited in Bell et al., 2020) indicated concerning levels of isolation among outdoor leadership programs, often due to heavy workloads and limited professional development opportunities. This professional isolation can lead to missed opportunities for knowledge exchange and innovation.

Social Network Analysis (SNA) provides a way to map and understand social connections (Wasserman & Faust, 1994). While sparsely applied in outdoor recreation, two studies highlight its value. SNA revealed nuanced relationship patterns on NOLS trips, uncovering insights missed by traditional surveys (Jostad et al., 2013). Similarly, Turner (2009) used SNA to show the growth in outdoor therapeutic groups was better predicted by specific network characteristics. Social Network Analysis (SNA) also serves as a measure of the theoretical construct of social capital, a key focus in research by Putnam (2000), Granovetter (1973), and Marsden (1983) theorizing that frequent, emotionally intense, reciprocal, and long-lasting relationships create strong network ties, but that even weak network ties can provide measurable benefits. This study investigates OAP networks through the following research questions:

Q1: What percentage of OAPs report being isolated from a professional network?

Q2a: OAP with a professional network, what types of organizations are OAPs connected to?

Q2b: Are program/institutional characteristics associated with having a professional network?

Q2c: Are program/institutional characteristics associated with nominations by another OAP?

Q3: Do program/institutional characteristics exert influence on OAPs networks (homophily)?

Q4: What percentage of network ties between OAPs are reciprocated?

Method

Sample: Outdoor academic programs (OAPs) were identified at 128 of 1480 bachelor's degree-granting institutions in the U.S. (Turner et al., 2022). **Procedures:** An online survey was distributed to institutional contacts at each OAP between May and October 2023. **Instrumentation:** The survey collected data on program characteristics (enrollment trends, age,

type, name, co-curricular offerings). A network generator question asked, "When thinking about *your program* are there other institutions that you model your program after, regularly network with or collaborate on programming?" Data on institutional characteristics (public/private control, religious affiliation, highest degree offered, co-curricular program presence) was collected via IPEDS. **Data Analysis:** Survey responses were coded in Microsoft Excel, then exported to Gephi (v. 0.10) for network visualization and SPSS for categorical analyses (Chi-square tests). To maintain confidentiality, nominating OAPs are not identified, but nominated OAPs are.

Results

A total of 91 surveys were completed, representing a 71% response rate from OAPs. **Q1: Isolated Programs.** A significant majority of OAPs (*n*=57,63%) were network isolates, reporting no ties to any other program type. **Q2a: Types of Network Connections.** For the 34 OAPs with network connections, the most common tie was with other higher education institutions (*n*=28,82%), predominantly other U.S. OAPs (*n*=23,68%). Additionally, 24% identified program providers (e.g., Outward Bound, NOLS), 15% noted professional associations (e.g., AEE, WEA), and 9% identified activity-specific organizations. **Q2b & Q2c: Characteristics of Network Integration/Nomination.** Chi-square tests revealed no statistically significant relationship between network integration (connected vs. isolate) and program characteristics (type, age, enrollment trend) or institutional characteristics (public/private control, religious affiliation, highest degree offered, co-curricular program presence). Similarly, no statistically significant relationship was found between being nominated by another OAP and institutional characteristics (control, religious affiliation, highest degree offered) or program type. **Q3: Influencing Characteristics (Homophily).** Institutional control and religious affiliation were found to have strong homophilic effects in which OAPs were more likely to nominate other OAPs with similar characteristics. Highest degree offered was found to have a similar, but weaker homophilic effect. Surprisingly, program type (major/nonmajor) exhibited a heterophilic effect, meaning programs were *more* likely to network with OAPs of a *different* type than their own. **RQ4: Reciprocity of Network Ties.** A striking finding was the complete lack of reciprocity in network ties (0%). No OAP that nominated another was, in turn, nominated by that same OAP.

Discussion

The most concerning finding of this study is the high degree of network isolation, with 63% of OAPs disconnected from their peers, reinforcing earlier anecdotal evidence (Horner, 2016). This isolation, coupled with a surprising lack of reciprocity in network ties, suggests that many connections are more symbolic than functional or exhibit prestige differentials, limiting the network's potential benefit for both OAPs (Molm, 2010). Network formation is strongly influenced by homophily, as OAPs tend to connect with others who share similar institutional identities, such as institutional control and religious affiliation . Interestingly, a heterophilic effect was observed regarding program type, suggesting a desire for diverse expertise.

The implications are clear: the OAP network is not fully leveraged for collective benefit. To address this, we recommend that professional associations facilitate community conversations and promote shared problem-solving to build reciprocity. For isolated OAPs, a focus on connecting with comparable programs and intentionally allocating time for networking is crucial. Well-connected OAPs can further strengthen the network by facilitating and modeling collective problem-solving, thereby fostering a collaborative, and ultimately more beneficial network for all.

Figure 1. Network of Outdoor Academic Programs.

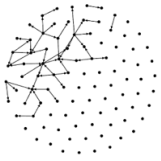

Figure 2. Network connections between OAPs (at left) at public (black dot) and private (white dot) colleges**;** (at center) at institutions granting doctorates (black) and bachelors/masters (white), and (at right) at institutions with major programs (black) and nonmajor programs (white)

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You Can't Pour from an Empty Cup: Integrating Mindfulness into Experiential Curricula

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Introduction and Background

In recent years, mindfulness has emerged as a powerful pedagogical and therapeutic tool across a wide array of professional disciplines. Outdoor Education (OE) and Counselor Education (CE) (e.g. training mental health practitioners) programs emphasize the development of reflective practitioners and holistic engagement with self and others. A shared interest in mindfulness practices has created rich ground for conceptual integration. This piece explores how mindfulness may be implemented into the curriculum of OE and CE courses. Drawing upon a review of literature in both areas, we propose pedagogical integration of mindfulness into curricula. Using mindfulness as a theoretical starting point, our case example from OE and CE may be further extrapolated to a variety of fields.

Mindfulness in Outdoor and Counselor Education

Mindfulness practices are rooted in contemplative traditions, but their secular adoption into Western psychological and educational settings has expanded dramatically in recent decades (Zhang et al., 2021). Mindfulness and wellness are integral to counselor education for both practitioners and those in training. The American Counseling Association (ACA) includes wellness, wellbeing monitoring, and self-growth expectations in its Code of Ethics (2014). The Ethical Standards for School Counselors (ASCA, 2022) instruct school counselors to promote student success through wellness and to monitor personal stress via self-care practices. Likewise, the Council for Accreditation of Counseling and Related Educational Programs (CACREP) emphasizes wellness for counselors-in-training, highlighting it throughout the foundational counseling curriculum (CACREP, 2024).

Researchers consistently show that mindfulness and wellness support the training and effectiveness of counselors. Dye et al. (2020) demonstrated how mindfulness and self-care mediate the stressors of graduate training, describing students' growth in recognizing the importance of self-care, its connection to wellbeing, and the positive influence of mindfulness across life domains. Nelson et al. (2017) emphasize the need to train graduate students in skills they can incorporate into practice. Suggested self-care approaches include self-compassion (Coaston & Lawrence, 2019; Nelson et al., 2017), mindfulness (Baggs et al., 2025; Dye et al., 2020), yoga (Thompson et al., 2018), and more comprehensive wellness-focused curricula (Kim et al., 2022; Wolf et al., 2012). Across studies, mindfulness and wellness remain central to preparing effective counselors.

Similarly, the OE field has embraced mindfulness by integrating practices into experiential education (EE), environmental education, recreation and wilderness therapies, and adventure education. OE aligns naturally with mindfulness, as research has shown links between mindfulness practice, nature connectedness, and wellbeing (Howell et al., 2011). Outdoor settings invite participants to slow down, tune into the present moment, and become aware of internal and external environments. Nature immersion, especially when paired with intentional mindfulness practices, can foster psychological restoration, improved mood, and deeper connections to self, place, and others (Kaplan & Kaplan, 1989; Menardo et al., 2021). OE programs use techniques such as solo experiences (Naor & Mayseless, 2020), reflective writing (Puhakka, 2021), and focused sensory activities like silent walks (Schuling et al., 2018), often with implicit intentions to promote mindfulness. In OE, mindfulness is framed less as a skillset to be cultivated and more as an emergent outcome of nature-based experience.

Despite differences in terminology and pedagogical traditions, both OE and CE aim to cultivate reflective, empathetic, and grounded practitioners. Higher education programs increasingly serve students who span these disciplines: for example, OE majors pursuing therapeutic recreation or wilderness therapy, or CE students incorporating ecopsychology, nature-based healing, or EE techniques such as mountain biking therapy. Thus, there is a growing need to explore how mindfulness can operate across both domains. We propose that mindfulness functions not only as an intervention or facilitation method, but also as a shared language and set of experiences for interdisciplinary understanding, collaboration, and growth.

Integration into Education Pedagogy

Building upon the shared pedagogical aims of OE and CE programs, we propose the pedagogical integration of mindfulness into EE coursework that supports student growth in both personal wellness and professional preparedness. The model emphasizes mindfulness not just as a wellness tool, but as a pedagogical practice that supports the development of ethical, reflective practitioners across both disciplines.

We will highlight a case example using a course assignment integrated across both disciplines: *"You Can't Pour from an Empty Cup."* This activity includes engagement in meaningful self-care practices and structured reflection connecting those practices to course content as well as personal and professional growth. Students document personal wellness activities of their choice (e.g. hiking, meditation, or creative expression) on a semester long plan. The assignment emphasizes consistent, intentional practice, with students recording at least one entry per week. At the end of the semester, students submit a short synthesis examining the relationship between their mindfulness practices and their engagement with course content.

This structure is informed by Kolb's (1984) Experiential Learning Cycle, emphasizing learning through direct experience, reflection, and the integration of new insights into behavior. Here, the cycle unfolds through the mindfulness activity (concrete experience), journaling (reflective observation), and synthesis paper (abstract conceptualization and active experimentation). Also, drawing on Attention Restoration Theory's premise that time in nature supports cognitive renewal and emotional regulation (Kaplan & Kaplan, 1989). OE students often connect mindfulness to nature experiences, while CE students may link it to therapeutic presence, ethical practice, and professional sustainability. Through this shared yet discipline-specific reflection, students begin to appreciate mindfulness as a professional competency and normalize reflection and emotional self-monitoring as essential for competent practice.

Conclusion

Ultimately, this pedagogical approach illustrates how mindfulness can be woven into the educational fabric of both fields as a core thread in developing practitioners who are present, grounded, and ethically engaged. As students prepare for complex professional roles that demand self-awareness, interpersonal skill, and resilience, mindfulness-based EE offers a timely and transformative approach to their professional, and equally important, personal development.

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What I Wish I Knew Before Teaching Outdoors: Interviews with In-Service Teachers

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Teacher preparation programs in the United States are responsible for equipping hundreds of thousands of future educators annually with the knowledge, skills, and competencies necessary to succeed in classroom settings (NCES, 2021). Accreditation bodies, such as the Council for the Accreditation of Educator Preparation (CAEP), provide a framework of standards and expectations to ensure program quality and teacher preparedness (CAEP, 2025). These programs typically encompass coursework in learning theory, human growth and development, assessment strategies, and teaching methods, coupled with practical experiences in classrooms. Pre-service teachers, in both the traditional and alternative licensure tracks, are evaluated through a combination of coursework, standardized certification exams, and state-level licensure requirements. Despite these rigorous preparation measures, instruction in and practice using school-based outdoor experiential education (SBOEE) is not regularly incorporated into teacher education programs.

SBOEE is an experiential pedagogy that situates instruction within outdoor spaces, using the environment as both the setting and the context for learning (Dean & Landreth, 2025; Wolf et al., 2022). Research highlights its multidisciplinary potential and ability to support academic, social, and emotional growth, yet its integration into teacher preparation programs in the United States remains inconsistent (Cooper, 2015; Dillon et al., 2006; Ernst & Tornabene, 2012; Oberle et al., 2021; Wolf et al., 2022).

Research indicates multiple structural and pedagogical barriers contributing to the underrepresentation of SBOEE in teacher preparation (Oberle et al., 2021; Pulte, 2016; Todd-Smith & Cora Compana, 2022; Wolf et al., 2022). These include rigid accreditation standards that limit curricular innovation, insufficient recognition of SBOEE as a legitimate teaching method, and a lack of preparedness among teacher educators to model and facilitate SBOEE (Pulte, 2016; Todd-Smith & Cora Compana, 2022; Wolf et al., 2022). First, rigid accreditation standards limit the inclusion of innovative pedagogical approaches, such as SBOEE, which emphasize experiential and student-centered learning that do not align neatly with the standardized evidence and metrics required for accreditation.

Second, although SBOEE is supported by substantial research highlighting its cognitive, social, and emotional benefits, pre-service teachers often graduate with limited exposure to this instructional strategy, resulting in diminished confidence, preparedness, and self-efficacy for using SBOEE in their classrooms (Wolf et al., 2022). This absence reinforces the perception within the broader education community that SBOEE is an optional or supplementary activity rather than a core, research-supported pedagogical approach (Davies & Hamilton, 2018).

Finally, SBOEE is rarely addressed in teacher preparation coursework or modeled by education faculty. Studies suggest that professors often lack the training, confidence, or institutional support necessary to incorporate SBOEE, resulting in a reliance on traditional lecture- and technology-driven instruction (Pulte, 2016; Wolf et al., 2022). Recent scholarship has emphasized the need for teacher education programs to recognize SBOEE as a legitimate, research-based pedagogy, integrate it into coursework and practical training, and provide teacher educators with the skills to model its use (Dean & Landreth, 2025; Wolf et al., 2022). The absence of SBOEE in teacher preparation programs contributes to the perception that SBOEE is an “add-on” rather than a legitimate teaching strategy. As a result, pre-service teachers graduate

underprepared to use the outdoors as a learning space (Bauld, 2021; Cooper, 2015; Dillon et al., 2006; Ernst & Tornabene, 2012; Oberle et al., 2021).

Therefore, the purpose of this study was to examine the experiences of in-service teachers who actively employ SBOEE in their classrooms to understand how they developed the knowledge, skills, and self-efficacy needed to effectively integrate SBOEE, and to explore how insights from their experiences can inform pre-service teacher preparation programs. This study was guided by the following research question: How do in-service teachers successfully integrate SBOEE in their classrooms?

By capturing the perspectives of practicing educators, this study provides evidence that can guide curriculum development in teacher preparation programs, ensuring that pre-service teachers are better equipped to utilize SBOEE and are prepared to extend learning beyond the classroom walls.

Methods

To answer our research question, we conducted semi-structured interviews with in-service teachers who actively implement SBOEE in their K–12 classrooms. Eligible participants were required to be currently practicing educators with prior experience using SBOEE and with intentions to continue their use of SBOEE in subsequent academic years. Teachers working exclusively in informal educational settings, first-year teachers, or those not actively engaging in SBOEE were excluded to ensure participants could provide substantive insights regarding preparation, implementation, and professional development needs. We conducted the interviews via Zoom, recorded them, and transcribed them for analysis. Analysis included a three-step process based on Merriam and Tisdell (2016): (1) open coding; (2) axial coding; (3) synthesizing the axial codes into categories.

Results

Twenty-two in-service teachers, representing diverse demographics and incorporating SBOEE in their classrooms, participated in semi-structured interviews. These interviews suggested that teachers' early and professional experiences with outdoor learning played a pivotal role in shaping their ongoing use of SBOEE. Many described formative experiences, such as working at summer camps, museums, or aquariums, that revealed the power of experiential, place-based learning and inspired their later teaching practices. These early encounters fostered confidence in leading instruction outdoors and reinforced a belief that meaningful, hands-on learning often occurs beyond traditional classroom walls. Teachers emphasized that the effective implementation of SBOEE depends on purposeful instructional decision-making, particularly regarding where, how, and when learning occurs. Participants described strategically aligning content with outdoor contexts, recognizing that certain subjects, such as ecology or meteorology, are best understood through direct engagement with the environment. This intentional use of outdoor settings was closely tied to teachers' broader goal of creating meaningful, engaging, and motivating learning experiences. Rather than viewing outdoor education as a break from academic rigor, teachers framed it as an essential pedagogical approach that deepens comprehension by situating learning in authentic, real-world contexts. Collectively, these perspectives highlight how SBOEE supports both engagement and rigor, reinforcing teachers' belief that the environment itself can serve as a powerful and relevant classroom.

Discussion

Findings highlight the interconnected roles of teachers' prior experiences, pedagogical decision-making, and beliefs about rigor and engagement in shaping the implementation of

SBOEE. Early and professional exposure to outdoor learning, through teaching in informal education settings such as camps, museums, or aquariums, appears foundational in cultivating teachers' confidence and philosophy toward utilizing SBOEE in their classrooms. These formative experiences reinforced the view that meaningful education often occurs beyond classroom walls and that outdoor environments can serve as powerful extensions of academic learning. Effective implementation of SBOEE, therefore, depends on teachers' capacity to intentionally align instructional goals with outdoor contexts, using the environment itself as a relevant, content-rich setting for learning. Importantly, participants reframed SBOEE not as a recreational supplement but as a rigorous, authentic, and motivating pedagogical approach that deepens comprehension through real-world application. This perspective challenges the misconception that SBOEE is primarily about enjoyment, emphasizing instead its role in promoting engagement, curiosity, and conceptual understanding. Together, these findings underscore the value of supporting teachers in developing the confidence, flexibility, and pedagogical vision needed to integrate SBOEE as an essential and effective instructional practice.

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What is "Core Outward Bound?" A global contemporary look at staffs' perceptions

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Background

What is essential or core to Outward Bound (OB)? OB was founded in 1941 on the premise of serving as a short-term character training school for merchant sailors. The original OB model, piloted in Aberdovey, Wales, was a 28-day course which focused on physical conditioning, an expedition on the school's sailing vessel, an individual project which encouraged youth to improve something on the school grounds or for the community, and service often in the form of rescue training (Hogan, 1968). While the immediate benefits of this program were primarily positioned as wartime readiness (Freeman, 2011), co-founder Kurt Hahn fundamentally believed that the training at OB ignited a young person's self-discovery and desire to serve others (Hahn, 1960, 1965). While course offerings (e.g., lengths, activities) have evolved as the school progressed and grew across the U.K. and Europe in the 1940s and 1950s and beyond, the ethos of character and service remained influential at OB (Freeman, 2011).

Since that time, OB has continued to expand globally and diversify programs to accommodate local needs. Now in 34 countries, and with a significant history of variations and critiques on OB's place in character development (Brookes, 2003; Millikan, 2006), it begs the question of what remains core to OB programming internationally? To address this question, during the 2024 OB Regional Symposium, held in Romania from November 12 to 14, more than 100 staff members, representing 15 OB Schools, participated in a symposium session that discussed "Core OB." This activity presented an initial opportunity to understand the globally diverse perceptions of "Core OB" among staff today.

Methods

The schools present for this activity included staff from Brazil, Belgium, the Czech Republic, OB USA, Croatia, Finland, Germany, Hong Kong, the Netherlands, New Zealand, Oman, Romania, Singapore, OB Trust (United Kingdom), and Vietnam. Participants were divided into 13 groups, given a large sheet of paper, and asked to draw a box on the paper, then fill the box with descriptors of "Core OB." After the session was complete, photos were taken of the papers from the 13 groups, and an attribution content analysis was conducted to examine the frequency of descriptive words on each paper (Krippendorff, 1989). Words that appeared most frequently, such as "challenge" or "learning," helped establish primary codes. The primary codes then served as umbrella terms that absorbed secondary codes, such as "mental challenges" or "experiential learning" (Hsieh & Shannon, 2005).

Results

Upon photo inspection, some words were centered in the "Core OB" box drawn on the paper, while some were drawn on the edge, and others were outside the box completely. Taking the opportunity to analyze content spatially, words written in the box were assessed to be group-agreed-upon "Core OB." In contrast, words on the edge or outside the box were assessed to be a result of group disagreement. Common words that appeared inside the "Core OB" box included group/team/social (19), learning (13), and challenge (12). Table 1 details the frequency and selected staff phrasing for "Core OB" words repeated four or more times. Repeated words inside the "Core OB" box with only 2-3 mentions include: framing (3), respect (3), responsibility (3), service (3), activity (2), adventure (2), awareness (2), character (2), community (2), development (2), duration (2), healthy (2), and roles (2). Finally, several repeated words appeared on the edge or outside the box, including service (3), expeditions/outdoors (3), and accessibility (3).

Table 1
Core Outward Bound as Identified by 2024 Regional Symposium Staff

Primary Code	Frequency of Words	Selected staff phrasing
Group/Team	Group (9), Team (6), Social (4)	teamwork, roles, building group experience, development, social
Learning	13	learning environment (supportive, positive, safe), experiential learning (action, reflection, transfer)
Challenge	12	challenge by choice, physical challenge (sailing, climbing, leap of faith), mental challenges (solo, hiking)
Values	Values (4), Compassion (7)	core values, OB values, integrity, compassion
Reflection	11	self, group, debrief, reframe, review, transfer
Nature/Outdoors	Nature (4), Outdoors (6)	nature, outdoors, sense of connection with nature
Safety	10	physical, psychological, safe spaces
Out of/Stretch Comfort Zone	8	"out of" or "leaving" or "stretching" comfort zone
Risk	5	perceived/real, acceptable
Journey/Expedition	4	journey, expedition
Resilience	4	grit/resilience
Transfer	4	transfer – impact on real life

Discussion

Staff at the OB symposium were fairly consistent on what they believed was core OB. As seen from Table 1, many of the original design elements of OB, such as physical challenges, an expedition, and service, are still valued by staff today. However, these results highlight a tension at OB of the necessity of historically fundamental course elements, with expeditions and service having equal appearances inside and outside the "Core OB" box. As previously mentioned, changing contexts have altered the OB course format for many decades. The tension of staff over expeditions makes sense given the diversity of staff in the sample, who likely represent schools that operate both expeditions and center-based programs. Service, on the other hand, is a concerning tension. From the early days of OB, service was an integral part of how students learned responsibility, teamwork, and compassion (Hahn, 1960), often serving on coastal rescue teams and assisting in life-saving missions (Hogan, 1968). These acts of "grand" service, while an instrumental source of character development, are less central or rarely used in the current OB programming. Today, service is often framed as service to self, others, and the environment, and typically revolves around the group. This shift, which Bolick and Nilsen (2019) and Seaman (2020) describe in US-based programming, seems to be evident in the responses from staff at this international symposium. As these authors describe, this shifts the methods of developing key social and civic outcomes, such as compassion, from these "grand" acts of service to personal growth and interpersonal interactions, which can present challenges in applying lessons to broader post-course contexts (Bolick & Nilsen, 2019; Seaman, 2020). While this is not a fully

representative sample of OB schools worldwide, these results suggest that "pluralistic service", as found by Bolick and Nilsen (2019), may be increasingly prevalent in OB schools globally.

OB has long served as a model in the broader field of outdoor adventure education (OAE) for expeditionary experiential programming that targets character development (Raiola & O'Keefe, 1999). As OAE continues to expand across the globe, variations in programming to best adapt to local needs are inevitable, and perhaps ideal. But OAE programs should take care to recognize how shifts or reprioritization in historic course principles, such as removing service components, may negatively impact the development of important outcomes (e.g., compassion) and should also recognize the limitations of substitutions for character development (i.e., service to others on course may not translate to service to the community).

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Trust Fall: Declines in Trust After COVID Among Outdoor Orientation Programs

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Trust serves as a cornerstone of successful collegiate transitions. Research suggests trust contributes to improved retention rates (Bell & Chang, 2017), enhanced student development (Derginer & Wiggins, 2018), and increased self-efficacy (Pick et al., 2017). Studies of Outdoor Orientation Programs (OOPs) have reported high student trust levels among participants (Bell, 2017). Theoretically trust is believed to be a foundational human motivation (Fiske, 2004) that helps first-year students navigate uncertainty and anxiety (Bell, 2017). This paper presents an analysis of annual data from 2014 to 2024 using the Behavioral Trust Inventory (BTI), a tool that measures the two distinct aspects of trust: Disclosure (e.g., trust people with secrets) and reliability (e.g., trust people to show up on time) (Gillespie, 2014).

Literature Review

Trust is "the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of monitoring or control" (Davis & Schoorman, 1995). This definition highlights the inherent risk and individual expectations involved in trusting relationships. In the context of this study, researchers used a further definition of trust presented by Gillespie (2014) in her Behavioral Trust Inventory (BTI) that captures two different types of trust, "reliability" (trust you will do what you say) and "disclosure" (trust you will not share secrets in a hurtful manner). These two dimensions are particularly relevant when creating new supportive teams as often occurs with OOPs, where students are theorized to gain trust from travel in vigorous and consequential environments where students have reported a hope for acceptance by their leaders and peers (Bell, et. al, 2024; Bell & Holmes, 2011). Trust is a critical variable for building robust support networks and promoting personal growth (Starbuck, 2019). This study explored why trust scores decreased?

Methods

This study utilized a survey to assess overall trust among participants of Outdoor Orientation Programs. The Behavioral-Trust Inventory (BTI) was administered to students 6-12 weeks after the OOP. The time lapse was meant to allow students to experience the academic and social pressures of college to contextualize the trust and support they derived (or did not derive) from the OOP. Comprehensive trust data was collected annually from 2014 to 2024, apart from 2020 due to the COVID-19 pandemic. The overall mean trust scores (out of a 7-point scale), standard deviations (SD), and population sizes (N) for each year are shown in Table 1. The BTI measures trust on a continuous scale, with higher scores indicating greater levels of perceived trust. The demographic characteristics of the participants across the years were broadly consistent in terms of age, gender distribution, minimizing confounding variables in the comparative analysis.

Table 1.

Behavioral Trust Inventory Overall Scores

Year	*N*	*X*	*SD*		*Year*	*N*	*X*	*SD*
2014	671	5.66	1.05		2020	---	---	----
2015	1000	5.75	1.11		2021	369	5.42	1.04
2016	---	---	---		2022	436	4.93	1.00
2017	843	5.67	.978		2023*	440	4.03	.82
2018	672	5.70	.97		2024	649	5.80	1.0
2019	776	5.64	1.00					

*indicates lowest score

Results

A longitudinal analysis of overall trust scores from 2014 to 2024 revealed a dynamic pattern, as depicted in Figure 1. Trust levels remained relatively stable from 2014 to 2019, hovering around a mean of 5.6 to 5.7. Following the COVID year of 2020 with no collected data, trust scores then began a noticeable, but not an immediate decline. In 2021, the overall mean trust score was X=5.42, which further decreased to X=4.93 in 2022. The lowest point in recorded trust was observed in 2023, with a mean score of X=4.03. This type of decrease was consistent across all subscales including leader disclosure, leader reliability, group total trust, group peer disclosure, and group peer reliability. In 2024 a substantial rebound in trust scores occurred, with trust scores increasing to X = 5.80, returning to levels consistent with the pre-2021 period.

Discussion

Researchers offer the following hypotheses to explain the trust pattern:

1. **Measurement Error Hypothesis**: While efforts were made to ensure consistency, subtle inconsistencies or biases in data collection may explain the period of decline (2021-2023).
2. **Leader Training Quality/Consistency Hypothesis**: The drop in trust (2021-2023) could be linked to the quality and quantity of leader training programs. Leader training changed significantly during and immediately after the pandemic (e.g., virtual training, reduced in-person practice). The robust rebound in 2024 would then correspond to a re-emphasis on these critical training components and an improvement in their delivery, perhaps as programs regained their pre-pandemic momentum.
3. **National Trust Level Fluctuations and Generational Impact Hypothesis**: The decline in trust (2021-2023) could reflect a broader, nationwide decrease in generalized trust among young adults, potentially influenced by socio-political events. Specifically, students who completed high school during the most restrictive phases of the COVID-19 pandemic. Students may have experienced altered social development, reduced in-person interactions, and increased anxiety, leading to lower baseline trust nationally upon entering college. The significant "bounce back" in 2024 could occur as cohorts less affected by these severe restrictions began entering college, or as general societal trust indicators began to recover.
4. **Loss/Re-establishment of Program Idioculture Hypothesis**: The trust decline might stem from a temporary disruption or dilution of the unique "idioculture" (shared norms, values, practices) of the outdoor orientation programs from 2021-2023, perhaps due to high staff turnover, rapid program expansion to accommodate deferred enrollments, or loss of institutional memory during the pandemic.

Understanding these dynamics may help strengthen Outdoor Orientation Programs. The dramatic recovery in 2024 suggests programs have the capacity to rebuild trust.

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Examining Outward Bound students' most valued outcomes and corresponding learning mechanisms: A global perspective

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Background

This study aimed to identify outcomes and the corresponding learning mechanisms from diverse student perspectives using international data from Outward Bound (OB). Outcomes developed from participation in OB and outdoor adventure education (OAE) more generally are intrapersonal (e.g., resilience), interpersonal (e.g., teamwork), and technical skills (e.g., navigation) as reported in existing research (Ewert & Sibthorp, 2014; Hattie et al., 1997). Learning mechanisms, meaning course processes and structures, that influence student outcomes include individual student factors (e.g., motivation), the natural environment, the social system, the instructional staff, the challenges of the program, specific course activities, and the learning methodologies (Froehly et al., 2023; Goldenberg et al., 2005). Research has also explored the impact that certain mechanisms have on the development of specific outcomes (Sibthorp et al., 2011; Warner et al., 2021). Despite general consistency within this line of research, existing studies typically draw conclusions from small samples, primarily comprising Western, English-speaking participants. As OAE becomes increasingly global, applying existing research knowledge to different contexts presents limitations. Therefore, this study aimed to extend the existing research on outcomes and learning mechanisms by providing a more comprehensive representation of OAE programming by examining student-reported outcomes and corresponding learning mechanisms in a large, international OB sample. With support from Outward Bound International (OBI), the Outward Bound Outcome Survey (OBOS) was used as the dataset for this study. Two open-ended text response questions from the OBOS, which ask students to identify their most valued learning and the course aspect responsible for that learning, were analyzed to answer the following research questions:

- What are the most frequently identified student learning outcomes and corresponding mechanisms through participating in an OB course at course completion?
- What are the most frequent associations between mechanisms and outcomes?

Methods

First, so that we had a sample that was not dominated by larger Schools and idiosyncratic programs, we intentionally stratified our sample by age range (12-18 year olds) and course length (5-10 days), to make comparisons reasonable and less likely to distortions. After filtering, 14 OB Schools (Australia, Brazil, Canada, Croatia, Germany & Austria, Hong Kong, Malaysia-Lumut, Netherlands, Romania, Singapore, South Africa, Taiwan, U.K., and Vietnam) had sufficient data to be included. After cleaning, 90 responses from each School, the maximum number still available for some Schools, were randomly selected for inclusion, with a final sample of 1260 responses. Researchers then coded and translated student responses with the assistance of Microsoft CoPilot, an artificial intelligence (AI) tool. AI coding was independently spot-checked by two coders, who met to discuss the coding process and collaborate on the results. Ultimately, AI achieved 90-95% accuracy in coding, based on multi-layer verification with human coders. To aid in the coding process and provide AI with the necessary structure for coding long text responses (Morgan, 2023), we developed a framework for this study, drawing

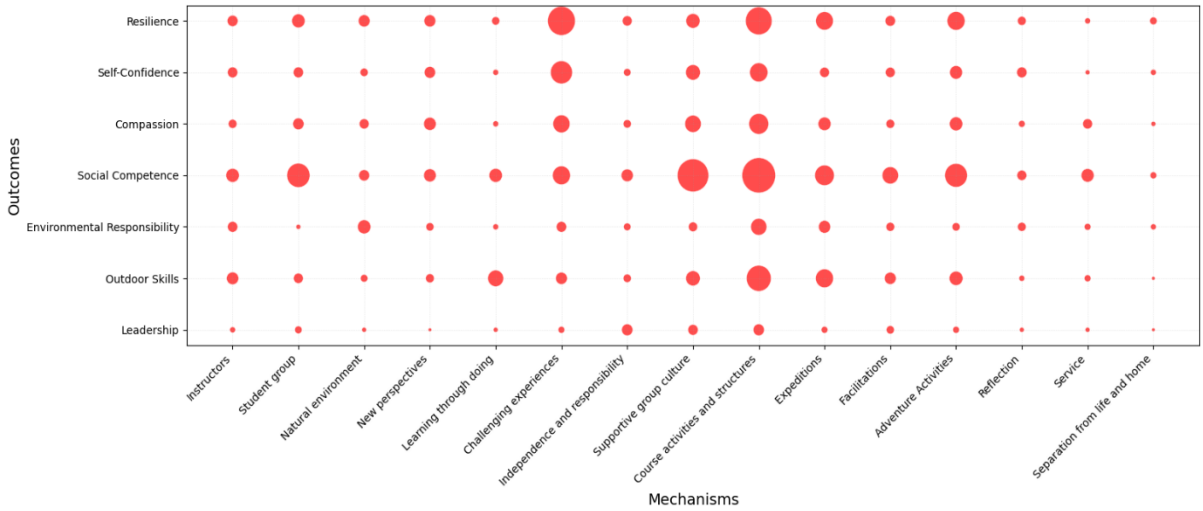
on existing OAE research and OBI materials. The final framework included six primary outcomes (resilience, self-confidence, social competence, compassion, environmental responsibility, and leadership) and twelve primary mechanisms (instructors, student group, natural environment, supportive group culture, challenging experiences, course activities and structures, new perspectives, learning through doing, reflection, service, separation from life and home, and independence and responsibility) with additional secondary terms used for clarity.

Results

Results show that students' most valuable outcomes were generally categorized within interpersonal outcomes (43.4%), intrapersonal outcomes (31.3%), and technical skill outcomes (12.6%). The mechanisms most responsible for learning were course activities and structures (27%), specifically expeditions (i.e., overnight activities like camping and cooking while being away from a center or basecamp) and adventure activities (e.g., climbing, high ropes), challenging experiences (16%), and a supportive group culture (15.5%). Resilience (an intrapersonal outcome) paired strongly with the mechanism of challenging experiences. Social competence (an interpersonal outcome) was linked to the student group and/or supportive group culture. Figure 1 illustrates the frequency of mechanism and outcome relationships.

Figure 1

Student-reported outcomes and corresponding mechanisms at OBI



Note: For reference, the largest number of linkages is between Social Competence and Course Activities and Structures with n=110.

Discussion

Our findings suggest that OB students worldwide value learning outcomes related to the development of interpersonal, intrapersonal, and technical skills. These findings are consistent with prior OAE research in predominantly Western, English-speaking populations (Goldenberg et al., 2005; Hattie et al., 1997; Sibthorp et al., 2011). Our findings also suggest these outcomes correspond to mechanisms such as the course activities and structures, challenging experiences, and the supportive group culture. These corresponding mechanisms are also supported in the OAE literature, within OB samples (Goldenberg et al., 2005; Hattie et al., 1997) and outside of OB samples (Sibthorp et al., 2011). Taken together, these results corroborate existing research by illuminating outcomes and learning mechanisms reported by students in a more globally representative sample. While our findings generally represent programming for each of the 14

OB Schools included in this study, School variations do exist but are confounded by several unexamined variables, including student population type (e.g., open enrollment, intact school group), course format (e.g., center-based, expedition-based, mobile course), and Schools using specific curricula to target outcomes. Future research aimed at understanding OAE around the globe can benefit from careful examination of local course implementation and cultural variables and adaptations that potentially influence student learning.

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Why Do Some Return? Understanding Reengagement After Outdoor Accidents

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Background

Serious incidents in outdoor adventure pursuits—such as climbing accidents, kayaking mishaps, or mountaineering close calls—can disrupt not only safety but also long-term participation in valued activities. The outdoor industry is known for rigorous and transparent accident analysis conducted post hoc to improve risk management and medical response (American Alpine Club, 2024; Attarian, 2012; Brown & Jones, 2021; Harper & Robinson, 2005). Additionally, psychological first aid has become an emerging standard of care for leaders and educators (Mortimer & Mortimer, 2023). Yet, this focus remains primarily on prevention and immediate response. What is missing is attention to the long-term question of *re-engagement*: how individuals decide whether to return to the activities they love—activities that often provide important physical, psychological, and social benefits.

Serious Leisure Theory suggests that highly committed individuals may persevere in the face of setbacks, as their identity and social networks are strongly tied to participation (Stebbins, 2007). However, a growing body of literature underscores how leisure can be disrupted by serious events, including accidents, injuries, or trauma (American Alpine Club, 2024). This study builds on that work by examining the circumstances under which perseverance gives way to disengagement. Participants themselves are increasingly using storytelling and peer support (e.g., *The Sharp End* podcast, American Alpine Club initiatives) as avenues for coping, but systematic research on re-engagement remains limited. The purpose of this research was to investigate the factors that influence re-engagement (return vs. non-return) in outdoor adventure participation after a serious incident or accident. Guiding research questions include: (1) Which factors predict whether outdoor adventure participants reengage after a serious incident? and(2) Among those who reengage, how do four predictor domains—(1) identity/social belonging, (2) self influences, (3) risk homeostasis, (4) coping strategies—predict the *time to reengagement*?

Theoretical Grounding & Survey Variables

Our survey was designed with variables anchored in established theoretical frameworks: stress and coping (Lazarus & Folkman, 1984), specialization (Bryan, 1977) and serious leisure (Stebbins, 2007), attribution (Weiner, 1985), risk appraisal/homeostasis (Wilde, 1994; Rickard, 2014), and spiritual beliefs (Benson & Spilka, 1973). Together these frameworks address appraisal of severity, identity commitment, meaning-making, risk interpretation, and spiritual worldviews as potential predictors of return.

Methods/Findings

The study draws on approximately 400 survey responses from NOLS and American Alpine Club members. Respondents provided both quantitative measures (accident characteristics, identity, coping, risk perceptions, and spiritual beliefs) and narrative accounts of incidents. Quantitative data will be analyzed using machine learning (CART Regression), and narratives will be examined through AI-based analysis, validated through NVivo coding to ensure rigor and consistency. Collectively, these analyses will reveal factors most influential in reengagement decisions and time to reengagement. Models will include four sets of predictors: (1) identity and social belonging, (2) self influences, (3) risk homeostasis, and (4) coping

strategies used, all potentially moderated by seriousness of injuries sustained.

Contribution/Discussion

This study extends outdoor accident research beyond immediate incident analysis to the longer-term processes of re-engagement. It also advances Serious Leisure Theory by illustrating that strong commitment does not always ensure perseverance, particularly when accidents disrupt identity and participation. By bridging outdoor education and industry practices with leisure theory and health outcomes, this study highlights how identity, meaning-making, and coping shape whether individuals sustain or withdraw from adventure participation. Findings can inform research, practitioner training, and strategies to support safe and sustainable re-engagement after accidents.

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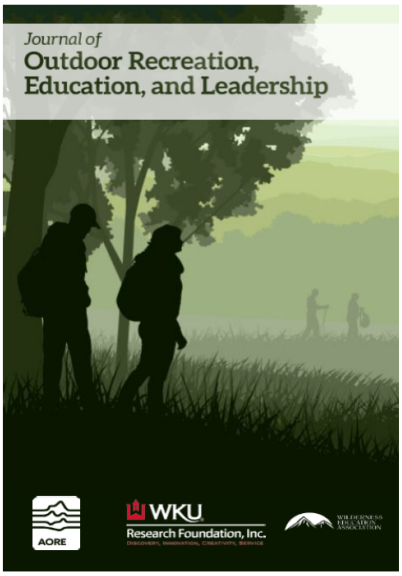

Special Issue: Coalition for Education in the Outdoors 2026

Deadline for manuscript submission: April 1, 2026

Guest Editors:

Bruce Martin, PhD
Pete Allison, PhD

A forthcoming (fourth quarter 2026) special issue of the *Journal of Outdoor Recreation, Education, and Leadership* will feature full-length papers based on abstracts presented at the Coalition for Education in the Outdoors (CEO) 16th Biennial Research Symposium held at the YMCA Blue Ridge Assembly conference center in Black Mountain, North Carolina, USA. Authors who presented their work at the symposium are invited to submit regular papers; essays, practices, and commentaries; and research notes for consideration for inclusion in this special issue. We encourage submissions representing all three categories. All manuscripts submitted will undergo the normal peer-review process and should adhere to the author guidelines as outlined by the *Journal of Outdoor Recreation, Education, and Leadership*. All manuscripts should be submitted through the Sagamore-Venture journal management system. Instructions for doing so are provided here: https://js.sagamorepub.com/index.php/jorel/about/submissions.

Interested authors should direct questions to the guest editors:

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Important Dates

Research Symposium: February 6-8, 2026
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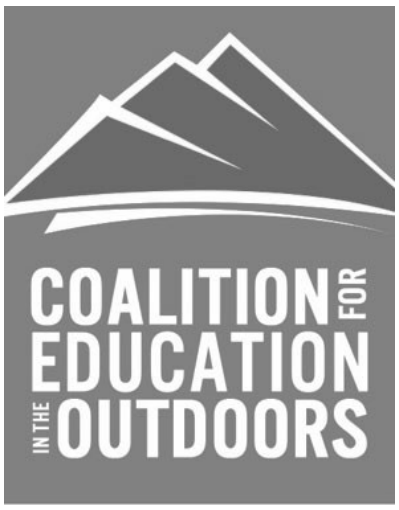

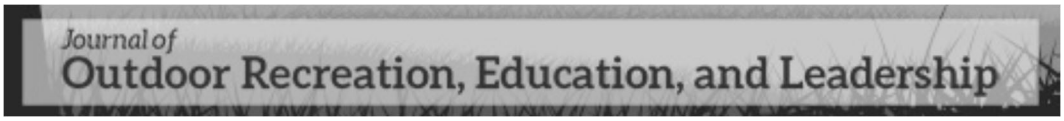

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