

OUTWARD BOUND AND OUTDOOR ADVENTURE EDUCATION: A SCOPING REVIEW, 1995-2019

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ABSTRACT

Outdoor adventure education (OAE) programming is often referenced as an effective intervention that encourages a wide array of outcomes in participants such as increased confidence, independence, and communication skills. However, as outdoor adventure education continues to increase globally, what does the academic literature say about the outcomes related to these programs? Hattie, Marsh, Neill, and Richards (1997) conducted the last major review of program efficacy in this realm. This updated scoping review, largely following PRISMA guidelines (Tricco et al., 2018), aims to summarize the academic literature on one of the primary outdoor adventure education providers internationally, Outward Bound (OB). Fifty-four studies, published between 1995 and 2019, have been summarized in this review. Utilizing Outward Bound International's (OBI) framework of "people", "place", and "process", themes and gaps in the literature are explored. Specifically, the OB literature has progressed since 1995 in demonstrating social and emotional outcomes in a variety of settings, a better understanding of the nature of effective programming, and further documenting the role the instructor plays in the learning experience. Recommendations are provided on developing more rigorous methodologies for future research, understanding the role of the physical environment in the learning experience, and utilizing theoretical approaches to integrate outdoor adventure education into broader academic realms.

Keywords: outdoor education, adventure education, Outward Bound, emotional learning, experiential learning, scoping review

ORGANIZACIJA OUTWARD BOUND IN IZOBRAŽEVANJE SKOZI PUSTOLOVŠČINE NA PROSTEM: PREGLEDNA ŠTUDIJA, 1995–2019

IZVLEČEK

Programi izobraževanja na prostem se pogosto omenjajo kot učinkovita intervencija, ki pri udeležencih spodbuja širok nabor rezultatov, kot so večja samozavest, neodvisnost in komunikacijske spretnosti. Ker pa trend izobraževanja na prostem globalno še naprej narašča nas zanima, kaj o rezultatih, povezanih s temi programi, pravi strokovna literatura? Hattie, Marsh, Neill in Richards (1997) so opravili zadnji večji pregled učinkovitosti programov na tem področju. Namen tega posodobljenega pregleda obsega, ki sledi smernicam PRISMA (Tricco et al., 2018), je povzeti znanstveno literaturo o enem od glavnih ponudnikov izobraževanja skozi pustolovščine na prostem na mednarodni ravni, Outward Bound. V tem pregledu je bilo povzetih štiriinpetdeset študij, objavljenih med letoma 1995 in 2019. Z uporabo okvira Outward Bound International „ljudje“, „kraj“ in „proces“ so raziskane teme in vrzeli v literaturi. Natančneje, literatura o Outward Boundu je od leta 1995 napredovala pri dokazovanju socialnih in čustvenih rezultatov v različnih okoljih, boljšem razumevanju narave učinkovitega programiranja in nadaljnjem dokumentiranju vloge, ki jo ima inštruktor pri učni izkušnji. Podana so priporočila za razvoj strožjih metodologij za prihodnje raziskave, razumevanje vloge fizičnega okolja pri učni izkušnji in uporabo teoretičnih pristopov za vključevanje izobraževanja na prostem v širša akademska področja.

Ključne besede: izobraževanje na prostem, izobraževanje skozi pustolovščine, Outward Bound, čustveno učenje, izkustveno učenje, pregledne študije

INTRODUCTION

Time spent outdoors has been associated with both mental and physical benefits (Kuo, 2015), and research has found that outdoor experiential learning programs, such as those offered by Outward Bound (OB), can promote positive development for adolescent participants (Orson, McGovern, & Larson, 2020). OB is one of, if not the, largest provider of Outdoor Adventure Education globally.

How effective these educational experiences are is unclear. It has been over 20 years since Hattie, Marsh, Neill, and Richards (1997) stated in their prominent meta-analysis on outdoor adventure education that “adventure programs can obtain notable outcomes and have particularly strong, lasting effects. It is clear, however, that adventure programs are not inherently good. There is a great deal of variability in outcomes between different studies, different programs, and different individuals” (p. 77). Since this meta-analysis, research on outdoor adventure education has paralleled the field’s growth, becoming a focal area for several academic journals such as *Journal of Outdoor Recreation, Education, and Leadership*; *Journal of Experiential Education*; *Journal of Outdoor and Environmental Education*; and *Journal of Adventure Education and Outdoor Learning*. While the body of research around these educational programs has continued to grow, the reviews that have been undertaken are weak and easily criticized. For example, Fiennes et al. (2015) noted that “We found 15 systematic reviews of the effects of outdoor learning. They provide extensive evidence of the effects of outdoor learning. However, the set is somewhat confusing because many of them overlap in terms of the primary studies they include.” (p. 5) and go on to note that “Almost all outdoor learning interventions have a positive effect” (p. 7). However, the methodological challenges of the previous systematic and scoping reviews of outdoor learning literature have not been addressed primarily because they have repeatedly used too wide a definition, thus creating too much diversity in the evidence. Thus, in this work, we focused exclusively on one organization to minimize this problem.

A lack of recent synthesis on outdoor adventure education has potentially hindered progress in research moving forward given the inability to clearly state what is known and unknown about the subject. By reviewing the current state of knowledge about these educational programs, more effective studies and practices can be informed. While summarizing the entire field of research on outdoor adventure may be too broad and unrealistic in a single review, compiling information from specific programs and the associated educational interventions will prove useful and provide opportunities to generalize to the broader literature and practices.

OB exists as one of these arguably representative programs, serving as a primary provider of outdoor adventure programming in countries across the world. Originally founded in Britain in 1941 by Kurt Hahn and Lawrence Holt, OB originally focused on character development for young men (Millikan, 2006). Since these early stages, OB’s focus has transitioned from character development to personal growth while also expanding its program internationally to include a wide variety of audiences (Freeman, 2011; Millikan, 2006). Like many other outdoor adventure programs, OB attempts to

provide transformative learning for individuals of all ages through challenging experiences in natural environments (OB Trust, 2017). Since its founding years, OB has now expanded to serve over 150,000 students each year in over 30 countries (OBI, 2020).

As such, OB has been associated with a number of positive outcomes identified as essential for the labor market and associated with positive youth development, such as improved goal-setting (Ang, Farihah, & Lau, 2014), resilience, leadership skills, the transfer of learning (Jostad, Paisley, & Gookin, 2012), general psychological well-being, improved sense of belonging, and empowerment (D'Amato & Krasny, 2011). Additionally, research suggests that participation in OB has been associated with increases in youth autonomy and self-confidence (Orson et al., 2020).

The studies reviewed in this article generally reflect the diversity of the courses: some explore day-programs utilizing high ropes courses to facilitate teambuilding activities, others examine extended backcountry expeditions and their associated outcomes, and others still look at classrooms utilizing the OB framework to facilitate experiential learning, amongst many others. While diverse in nature, understanding the commonalities and differences amongst these educational experiences can help work towards developing a general model of learning for the OB experience. A limited understanding of these common traits between programs was a weakness in the academic literature identified by Hattie et al. (1997). Therefore, the research question guiding this review is What is known of the outdoor adventure education process through OB from academic literature published following Hattie and colleagues' (1997) meta-analysis? We utilize OB's conceptualization of "people", "place", and "process" as educational components to present our findings in an attempt to bridge this gap between research and practice. What constitutes each of these components within the OB experience is detailed further in the methods section and those that follow. The upcoming sections of this paper outline details on how the scoping review was conducted. This is followed by three sections outlining trends and progress on how the academic literature has developed since Hattie et al. (1997) within the categories of people, place, and process. Each of these sections conclude with recommendations for future research on how forthcoming studies can better understand these concepts and integrate them into a more holistic understanding of the OB process. Finally, a general discussion follows each of these three sections in which we present an argument for greater theoretical rigor in OB research.

This scoping review, largely following PRISMA methodologies and previous methodological guidelines established through Arksey and O'Malley (2005), Levac, Colquhoun and O'Brien (2010), and specifically the extension for scoping reviews (Tricco et al., 2018), is intended to be of use for two primary audiences: OB practitioners who wish to understand the best practices supported by previous research, and educational researchers looking to build upon the previous work examining OB courses and methodology.

METHODS

Scoping Review Process

This study utilized a scoping review methodology (Arksey & O'Malley, 2005; Levac et al., 2010; Moher, Liberati, Tetzlaff, & Altman, 2009; Tricco et al., 2018) to summarize the academic literature on OB. This approach looks to review the literature with the goal of summarizing and reporting what is currently known on the subject and identifying gaps in current understanding (Arksey & O'Malley, 2005). It is considered especially useful when the field being reviewed is heterogeneous (Pham et al., 2014), as is the case with research done on OB programming given the variety of programs offered and methodologies utilized to study the program. As will be obvious when discussing the findings, a broad array of methods have been used to study OB programming. These methods have ranged from intensive ethnographic studies to widely distributed surveys. Due to the wide variety of data being interpreted, a scoping review methodology was chosen over the meta-analysis technique utilized by Hattie et al. (1997).

Locating Studies Relevant to the Research Question

We identified relevant studies for inclusion through database searching. The following databases were utilized: WorldCAT, Academic Search Complete (Ebsco), ERIC (Proquest), and Google Scholar. For each of these databases, the following terms were entered: "Outward Bound" and "education", "Outward Bound" and "adventure", "Outward Bound" and "experiential", and "Outward Bound" and "learning". In addition, an email message was distributed via OBI requesting various practitioners across the OB network (in 37 different countries) to forward relevant studies to the authors for review. The following additional filters were applied to these searches to increase the relevance of the gathered studies:

- Articles must have been published in a peer-reviewed academic journal.
- The articles must have been published after 1995. Using Hattie et al. (1997) as a benchmark, this scoping review aims to summarize the research on OB programming from that point forward.
- Articles must have been published in English, the first language of all the authors of this review.

These inclusion criteria aim to parallel the recommendations made by Levac et al. (2010) where the established inclusion criteria allow for a breadth of studies to be collected that characterizes a given field while also acknowledging relevant limitations.

Selecting Studies that Meet the Inclusion Criteria

This initial search provided over 1000 potentially relevant research articles. The titles and abstracts of these initial results were reviewed by the first author. Many articles at this stage presented research on other outdoor adventure programs or were not presented in peer-reviewed academic journals and were thus excluded from further consideration in this review. This resulted in 148 research articles being downloaded for closer reading.

In following the recommendations for screening and eligibility criteria established by PRISMA, and those of previous studies (i.e., Arksey & O'Malley, 2005; Levac et al., 2010), the research team met regularly to discuss inclusion criteria. In total, 54 studies were determined to fully meet the inclusion criteria after overlaying these additional inclusion criteria and were included in this scoping review (indicated using an asterisk in the reference list).

Extracting Data from the Studies

The research team met regularly to determine the most useful data to extract from the included studies to best answer the outlined research questions. The information extracted from each study included study goals and research questions, study characteristics and data collection methods, and the primary findings from the study. As suggested by Levac et al. (2010), two authors extracted data from five of the same articles and the results were compared to establish consistency in the data extraction methods, and rather than quantifying the findings, we followed PRISMA methods for qualitative synthesis during this Inclusion phase of the research process. A similar process is used in establishing coding consistency in qualitative research projects (Saldaña, 2009). Differences in extraction methods were discussed and a mutual understanding of what to record from each included study was established. This allowed for greater consistency across the research team during data collection.

Summarizing and Synthesizing the Findings

Following the recommendations outlined in Levac et al. (2010), the process of summarizing the findings from this scoping review were developed referencing qualitative research techniques. As detailed by Saldaña (2009), broad thematic categories were developed from information extracted during the initial analysis. The initial information gathered from each research article studying OB was summarized into larger categories in order to present the findings within a cohesive, logical framework. This was done through an iterative process with the research team meeting regularly to discuss the emergent themes. These findings were considered within the context of their broader

implications of identifying productive directions for future research, as well as how research can inform more effective OB programming.

Given the broader themes found within the academic literature and the goals of this scoping review, it was decided that the “three Ps” of OB programming - people, place, and process - provided an effective framework for conceptualizing the findings. This framework has been recently adopted by OBI as a guide for implementing the curriculum across OB schools globally. By utilizing these categories to summarize the selected studies, the academic research on outdoor adventure education can be organized in a manner that is meaningful to the unique educational context it is intended for.

In implementing this framework to conceptualize the initial information extracted from each article, “people”, “place”, and “process” were adapted as follows to summarize the studies and findings for this scoping review:

1. People: The findings are relevant to a specific population of interest and how the OB experience is perceived by or impacts them.
2. Place: The findings are relevant to how the physical environment or setting influences the learning or developmental experience.
3. Process: The findings are relevant to program activities, elements, or instructional techniques and how they influence the OB experience, including the corresponding outcomes.

The following sections utilize this framework in categorizing papers based on their research goals and objectives. The broad themes and findings are reviewed within each of the “three Ps” categories.

REVIEW OF RESEARCH METHODS

Research Approach

Responding positively to Hattie et al’s (1997) recommendation to consider alternative research designs beyond the dominant use of a pretest-posttest design, literature on OB programming between 1995 and 2019 is distributed nearly evenly between quantitative, qualitative, and mixed methodology approaches. Of the 54 studies, 18 studies (33.3%) were constructed as quantitative research, 19 (35.2%) as qualitative, and 17 (29.6%) as a mixed methodology approach based on their design characteristics compared to Creswell’s (2014) definitions of the three approaches.

Quantitative Research

Regardless of the design, all 18 quantitative articles applied self-administered surveys, scales, or questionnaires. Examples of established surveys and scales used or modified among the studies are the OB Outcomes Instrument (OBOI; Ewert, 2014; Faircloth & Bobilya, 2013), the Mississippi Scale for Combat-Related PTSD and the

Impact of Events Scale (Hyer, Boyd, Scurfield, Smith, & Burke, 1996). These instruments were used to measure dimensions such as resilience (Ewert, 2014; Neill & Dias, 2001), positive and negative affect (Kirwin et al., 2019), long-term outcomes (Gassner, 2008; Gassner & Russell, 2008) and personal effectiveness and locus of control (Grefrath et al., 2011).

Qualitative Research

Throughout the qualitative studies, an array of data collection methods were utilized. Of the 19 qualitative articles, 14 employed one of the five qualitative designs highlighted by Creswell (2013) - six case studies, five ethnographies of various constructs, two phenomenological studies, and one each of grounded theory approach and narrative. The data collection methods used in the 14 studies demonstrating the five designs brought into focus by Creswell (2013) corresponded with the data collection methods characteristic of each design (see table 1). The remaining five studies were two historical analyses, two interpretive studies, and a heuristic design.

Table 1. Qualitative Data Collection

	Narrative	Phenomenology	Grounded Theory	Ethnography	Case Study
Literature in review	Video, interviews	Interviews, semi-participant observations, document analysis	Interviews	Interviews, document analysis, observation, self-reflection	Interviews, photography, moodboards, document analysis, observations, open response survey

Self-reported data in the qualitative research articles were collected through interviews and with open response surveys. Interviews were the most prominent self-reported qualitative data collection method, occurring in 13 studies. Data from open-ended questionnaires were utilized in only two case studies (Leberman & Martin, 2002; Martin, Leberman, & Neill, 2002). Observations were conducted in eight studies, one of which used video to record and observe afterwards (Benham & Shephard, 1995). Data from the observations were also used to construct narratives (Benham & Shephard, 1995), to explore through phenomenology (Broaddus et al., 2013), and to gain an ethnographic perspective (Lowan, 2009; Vernon, 2015). Two studies (Freeman, 2011; Millikan, 2006) were reliant solely on document analysis to develop their historical analyses of

OB programming. Other applications of document analysis have been exemplified in case studies (Hickman Dunne, 2018; Klein & Riordan, 2009; Klein & Riordan, 2011) and in ethnographies (Lowan, 2009; Newbery, 2004) as the documents acted as tools for triangulation.

Mixed Method Research

The majority of mixed-method research has predominantly been conducted using a dominant-less dominant design with quantitative data collection methods supplemented by qualitative data collection. Seven of the 17 mixed-method studies used surveys, ranging from mixed-response surveys with as few as three open-ended questions (Martin & Legg, 2002) to exclusively open-response surveys (Bobilya, Kalisch, & Daniel, 2014; McKenzie, 2003). The remaining 10 studies integrated more formal qualitative data collection methods such as observations (e.g., Hanna, 1995; McKenzie, 2003), document analysis (e.g., Jirásek & Dvorackova, 2016), and interviews (e.g., Gassner, Kahlid, & Russell, 2006; Mott & Martin, 2017). Although grounded theory, case study, and phenomenology are most typically categorized as a qualitative research strategy (Creswell, 2013), five studies incorporated quantitative data collection within these traditionally qualitative designs (Bobilya et al., 2014; Jirásek & Dvorackova, 2016; Martin & Leberman, 2008; McKenzie, 2003; Mott & Martin, 2017).

Data Collection

An analysis of the timing of data collection in OB programming literature was conducted to depict the length of time the data represent in relation to OB programming. Data collection across the literature occurred in a range from pre-program to up to eight years after OB programs conducted between 1995 and 2020. A frequency table of when data collection among the three research designs occurred is described in Table 2. Among the literature, 24 articles reported on data collected at one timepoint whereas the remaining 30 articles collected data at two or more timepoints. Studies using a single timepoint data collection period were non-experimental or qualitative in nature. Studies that gathered data at multiple time points took on a quantitative quasi-experimental or single-sample repeated measures design, or a longitudinal approach in a qualitative or mixed methods approach.

Table 2. Frequency of Data Collection Periods

	Pre-Program	During Program	Immediately Post-Program	Up to 6 months after	6 months – 1 year after	1 year + after	Unspecified
Quantitative (n = 18)	11	0	14	7	0	2	0
Qualitative (n = 19)	0	12	8	5	3	1	4
Mixed Methods (n = 17)	8	2	15	4	3	4	1
Total	19	14	37	19	3	7	5

Several notable findings on data collection arose. First, no qualitative research collected data prior to the OB programming. The data collection methods conducted during programming were primarily of a qualitative nature, except for Jirásek & Dvorackova (2016), who administered a quantitative frequency chart at three points during programming. While no qualitative data were collected pre-program in a qualitative study, eight mixed-method studies incorporated pre-program and post-program quantitative surveys in addition to qualitative data collection methods such as interviews, focus groups, observations, and document analysis that occurred during or after programming (e.g., Greffrath et al., 2011; Hanna, 1995; Harper, Norris, & D’astous, 2014). Finally, among all 54 studies, only one study under review (Mott & Martin, 2017) collected and examined data beginning with the pre-program and extending to over 1 year proceeding program participation.

PEOPLE, PLACE, AND PROCESS

The 54 reviewed studies provide insight into how research has further developed in understanding the people, place, and process of the OB learning experience since 1995. While these categories are not mutually-exclusive, we have used people, place, and process as a means to organize the results of this study. A brief overview of each study reviewed is provided in Table 3 (on pages 158 to 168). The information in Table 3 is intended to provide context on the diverse areas that these studies were conducted in and the various methodologies utilized to produce the current state of knowledge on

OB programming since Hattie et al. (1997). We hope this table will serve as a quick reference for individuals seeking more information on a study referenced in a later section as all relevant background information cannot be immediately included in the text of the manuscript. Findings within each of the people, place, and process categories are outlined briefly in the following paragraphs prior to being explored in greater depths in the subsequent categories.

Regarding the people aspect of the OB experience, a considerable amount of research in the past 25 years has focused on unique groups of interest and documented how the outdoor adventure education experience impacts these diverse populations. Specifically, a large portion of recent research has examined veterans and other at-risk populations and the expansion of OB outside of traditional Eurocentric and North American settings. Given that Hattie et al. (1997) noted the lack of participant background information incorporated into early OB research, this has been one area in which the literature has seen a notable expansion since 1995. While this progress has been promising, we recommend that researchers look to more modern research techniques in human development and educational literature to further build upon this initial progress.

Studies examining the influence of place on the OB educational experience have been surprisingly scant since 1995. Two primary lines of research have emerged from this relatively small body of literature, exploring the influence of the physical environment on the learning process or the influence of an OB course on the participants' pro-environmental learning outcomes. Given that learning in challenging outdoor environments is touted as a primary component of the OB experience (OB Trust, 2017), this presents a promising direction for future research. This could be an especially important gap in knowledge to explore if competing models of learning through outdoor adventure education are to be developed, something that has still not come to fruition in the academic literature since Hattie et al. (1997) called for it almost twenty years ago.

Lastly, and somewhat unsurprisingly, process represents a well-studied aspect of the OB educational experience since 1995. Research has examined specific parts of the OB experience such as the final expedition (the autonomous final journey independent of course instructors on OB expeditions), the solo camping experience incorporated into many expeditions, course facilitation by instructors, social relations, perceptions of challenge, and post-course learning outcomes. This represents considerable progress since 1995 as Hattie et al. (1997) noted that many outcomes from the outdoor adventure education experience were not linked back to specific course components or that the nature of many programs had not been well documented. Additionally, some of this research on the OB learning process has begun to "ascertain the effects of the instructor" (p. 72), another suggestion for future research made by Hattie et al. (1997). To further develop our understanding of the OB learning process, we point to other educational and psychological concepts that could add greater methodological rigor and theoretical grounding to the field of outdoor adventure education research.

The following three sections expand upon the information provided in the preceding paragraphs in greater detail. Each of the three outlined components of the OB learning experience – people, place, and process – are inherently interrelated with the other

components. We do not aim to explore each of these parts in isolation in the following sections. Rather, we attempt to explore the nuances that emerge in our understanding of outdoor adventure education when each element is the focal area of study. General themes and findings within people, place, and process are discussed and benchmarked against the state of the academic literature reviewed by Hattie et al. (1997). We then conclude each section with recommendations for future research and how studies on OB can continue to develop in rigor and applicability to practice. A brief general discussion is then presented in the conclusion making the case for greater theoretical rigor within the field of outdoor adventure education.

People

The academic literature on “people” has primarily explored the OB experience through two primary lenses: how programming helps veterans and other at-risk populations and how OB coursework manifests itself across multiple cultures in educating different audiences. For various populations acting as participants in the OB experience, social-emotional growth, defined in a variety of ways, was supported by findings. There was less evidence that the OB experience aided in helping specific psychological issues in at-risk populations. Furthermore, interactions between the culture of the participants and the cultural roots of the programming may play a role in determining program outcomes. Despite the mixed results on these fronts, the social-emotional growth provided evidence that most populations gained outcomes such as confidence, goal-setting skills, and interpersonal skills from their OB experience. While many of these findings parallel those reported by Hattie et al. (1997), significant progress has been made in the area of their call to better incorporate the background of the participants into the study design. We conclude this section by indicating some methodological approaches for quasi-experimental designs that may help researchers better understand the effects of the OB educational experience on unique populations.

Four studies specifically focused on OB’s effect on veteran populations in Canada and the United States, examining how it helped ease their transition back into everyday life (Ewert, 2014; Harper et al., 2014; Hyer et al., 1996; Scheinfeld, Rochlen, & Russell, 2017). While each of these studies defined social-emotional constructs in slightly different terms, the OB experience was linked to various outcomes for veteran populations in North America such as increased interpersonal skills, goal-setting, and self-confidence (Ewert, 2014; Harper et al., 2014). Scheinfeld et al. (2017) similarly found that an OB course helped improve various aspects of mental health (e.g. distress and the perception of interpersonal relationships) for individuals. Despite these positive findings in other studies, Hyer et al. (1996) found that the OB experience had no effect on the post-traumatic stress disorder symptoms of veteran participants.

Similar studies examining the influence of OB educational experiences on other at-risk adult populations have paralleled the results found in veteran populations. Outcomes included improved goal-setting abilities, interpersonal skills, and confidence

(Leberman, 2007; Maxwell, Perry, & Martin, 2008; Walker, Onus, Doyle, Clare, & McCarthy, 2005). Maxwell et al. (2008) notably departed from approaches taken by other studies on populations of interest by purposively sampling individuals that dropped out of an OB educational intervention focused on helping those facing long-term unemployment. The findings indicate that a lack of social integration contributed to the individuals discontinuing their participation in the program (Maxwell et al., 2008). While this finding is largely in line with those of other studies, this study design presents a promising alternative to understanding OB programming. Additionally, as a notable parallel to Hyer et al.'s (1996) findings on veterans, Walker et al. (2005) also found that their at-risk adult population, those recovering from traumatic brain injuries, saw increased emotional growth but no improvement in their specific psychological condition after an OB course. While this body of evidence suggests that OB course participation can result in social and emotional growth for at-risk adult populations, it is not as effective in improving psychological conditions that are unique to specific at-risk groups (Hyer et al., 1996; Walker et al., 2005).

Four additional studies examined the impacts of the OB experience on at-risk youth in various contexts (Ang et al., 2014; Broaddus et al., 2013; Fischer & Attah, 2001; Pommier & Witt, 1995). These studies provided similar evidence for social-emotional growth to what was found within veteran OB participants and other at-risk adult populations. The varied contexts within which these studies were conducted provides interesting insight into how different cultures intersect with programming for at-risk youth. For example, Purdie and Neill (1998) examined under-achieving Japanese students enrolled in a 22-day OB Australia program. The participants showed a significant decrease in confidence and peer relations when surveyed post-program. When compared to a population of Australians enrolled in a similar course, the Japanese students rated the group cohesion and course value significantly lower than their Australian counterparts (Purdie & Neill, 1998). Alternatively, two other OB interventions for at-risk youth that were provided within the individuals' own culture, the United States (Broaddus et al., 2013) and Singapore (Ang et al., 2014) respectively, were more successful in achieving their desired goals. While this contrast was only examined explicitly by Purdie and Neill (1998), these findings suggest that cultural factors may play a role in determining the success of an OB educational program for at-risk individuals. This may be especially true as OB programming has had difficulty in moving past its roots in traditional character-building practices originating in the European context (Freeman, 2011; Millikan, 2006). In addition to these studies, Sibthorp, Funnell, Riley, Chan, and Meerts-Brandsma (2018) specifically examined how course language administration (as a potential proxy for the participants' cultural views) influenced program outcomes for youth in an OB Hong Kong program. This was found to have no effect on the course outcomes (Sibthorp et al., 2018). While this contrasts with the findings of other studies, this may be due to language preference not being an adequate representation of the participants' cultural views. As a whole, these studies suggest that the intersection of participant and program culture may matter for at-risk youth learning outcomes.

In complement to these trends within at-risk youth studies, a variety of research projects have explored how OB courses have become tailored to various geographical and cultural contexts of participants. The use of “dramaturgy” in the Czech Republic (Jirásek, Jirásková, Majewská, & Bolcková, 2017; Jirásek, Veselský, & Poslt, 2017; Martin, 2011; Martin et al., 2002) or incorporating indigenous perspectives into OB Canada courses (Lowan, 2009) are examples of this. The dialectic nature of individuals’ cultural backgrounds interacting with OB course content exemplifies how the *people* of OB courses are continually co-creating the learning process and how the experiences are simultaneously influencing them. Jirásek, Veselský, et al. (2017) discuss how the “dramaturgical” approach to OB education in the Czech Republic is grounded in the unique people, place, and culture of the area. Martin (2011) used an autoethnographic approach to summarize his past work studying dramaturgical techniques, stating that the dramaturgy approach supported the holistic development of participants through a variety of games stimulating different learning and development styles, including physically, socially, psychologically, and spiritually (Martin, 2011). These assertions have been supported empirically by other studies (Jirásek & Dvorackova, 2016; Martin et al., 2002). Lowan (2009), utilizing a collaborative ethnographic approach in a Canadian context, asserts that “grounding Indigenous education programs in the teachings and traditions of respective Indigenous cultures in order to support decolonization and cultural revitalization” can help improve program efficacy. Taken as a whole, these studies examining OB across cultural contexts suggest that tailoring educational programming to the unique background of the participants may help improve the course outcomes.

While the findings across many of these unique groups parallel the social and emotional outcomes already reported by Hattie et al. (1997), studies within this variety of unique contexts represent significant progress in terms of their call to further incorporate participant background into the study design. As Lerner (2018) asserts in his writing on human development research, growth and change throughout the lifespan is a non-ergodic process. Therefore, researchers should take an idiographic approach and study a phenomenon of interest across many contexts. Commonalities should then be identified across these contexts to find generalizable concepts (Lerner, 2018). While social and emotional growth within these various unique populations and contexts may simply reinforce Hattie et al.’s (1997) general findings, the consistency across these various groups is encouraging.

We wish to conclude this section by briefly looking at other research approaches within the educational and human development literature to identify ways in which the people aspect of the OB experience may be studied more effectively. Many studies within this section took a broad array of descriptive and reductionist approaches to understanding OB programs. While much of the rich qualitative data presented through these studies have helped further the theoretical understanding of learning in outdoor adventure education, the pre- and post-test approaches utilized do not fully explore the complexity of the learning experience for participants. Approaches such as propensity score matching (Caliendo & Kopeinig, 2008; Dehejia & Wahba, 2002) and regression

discontinuity design (Cappelleri & Trochim, 2001; Cook, 2008) provide opportunities to more fully account for participant background when studying educational processes and outcomes. Propensity score matching allows researchers to “find in a large group of nonparticipants those individuals who are similar to the participants in all relevant pre-treatment characteristics” (p. 32, Caliendo & Kopeinig, 2008). This way, quasi-experimental studies can more effectively isolate the effects of OB educational intervention while also acknowledging the relevant background characteristics of those involved in the learning process. Similarly, regression discontinuity design examines similar individuals who fall above or below a certain threshold in qualifying for a program or intervention. The regression analysis then explores whether “a treatment effect appears as a ‘jump’ or discontinuity at the cutoff point in the regression function linking the assignment variable to the outcome” (p. 152, Cappelleri & Trochim, 2001). This may prove to be a useful approach in designing future quasi-experimental studies, especially for OB programs that target qualifying at-risk populations such as that done by Ang et al. (2014). As OB research continues to explore the program’s influence for new and different populations, methodological advances will also help to better understand the program effects in these different contexts.

Place

OB asserts that challenging experiences in outdoor environments are a central element of their programming (OB Trust, 2017). To cater for a wide array of participants around the world, there are OB schools in 37 locations across 34 countries on six continents around the world (OBI, 2023). The articles under review discuss research conducted in OB programs from 10 different countries, representing 28.6% of the countries covered by OBI. Given that the physical environment is touted as a critical component within OB, this section reviews research that has explored its role within the learning experience.

Relative to other areas of the OB experience, studies that have explicitly examined “place” as a central concept have been relatively scarce. Hattie et al. (1997) called for an expansion of competing models within the outdoor adventure education literature. Understanding the physical environment as an interrelated component of the learning experience is necessary if these models are to be developed. This section concludes with recommendations for future research on how to better incorporate place into future OB research. Recommendations include incorporating research on the sense of place and perspectives from environmental psychology.

The link between culture and place represents an interrelationship within which OB courses can ground their practice of promoting learning outcomes. This lens inherently acknowledges *people* grounded in *place* as a driver of the learning *process*. Lowan (2009) linked these elements via collaborative ethnography in a Canadian indigenous context. They assert that indigenous OB programming should be designed specifically around the symbiotic relationship indigenous peoples have with their unique geographi-

cal location (Lowan, 2009). Furthermore, a pair of studies examining the dramaturgical approach to OB programming in the Czech Republic found that the course helped to inspire a strong spiritual connection to nature and appreciation for human-nature relationships (Jirásek, Jirásková, et al., 2017; Jirásek, Veselský, et al., 2017). As outlined in the previous section, cultural context may play an integral role in OB programming outcomes. It is of note that a large portion of studies with findings relevant to the physical environment were also grounded in a specific culture. Two additional studies that did not find pro-environmental outcomes for OB participants were not as closely grounded in a specific culture or location (Hanna, 1995; Martin, Bright, Cafaro, Mittelstaedt, & Bruyere, 2009).

Other studies have more closely examined how the physical environment influences the OB learning process. Many of these studies focused on challenge and risk and how such elements promote learning amongst participants. Hickman Dunne (2018) explored how participants interpret their interactions with the physical environment in the context of outdoor adventure education in a British setting. Using an ethnographic approach, they found that participants derived both joy and unpleasant memories from their interactions with the physical environment. Outdoor adventure equipment and clothing also emerged as a dominant theme with participants often expressing frustration with its appearance or function, while its necessity was acknowledged by both participants and staff (Hickman Dunne, 2018). Given this challenge and the corresponding risk specifically associated with the physical environment on OB courses, a small body of studies also explored how safety and risk influenced the course outcomes (Holden, 2004; Leberman & Martin, 2002; Mott & Martin, 2017). The staff working for OB New Zealand saw risk mitigation as one of their primary jobs (Mott & Martin, 2017). This represents a balancing act for OB program managers as challenge via the physical environment is acknowledged as a central part of program learning (Hickman Dunne, 2018), yet risk mitigation is a vital component of program management (Mott & Martin, 2017). These findings indicate that the physical environment and the associated challenge are inextricably related to the OB learning process, much of which has already been acknowledged by OB practitioners. Despite this, the specific relationships between challenges involving the physical environment and learning outcomes have largely been unexplored.

As place remains a relatively understudied idea within the academic literature on OB, there are ample opportunities to look to other areas of research for inspiration on how to explore this concept. Research on sense of place (e.g. Kudryavtsev, Stedman, & Krasny, 2012; Stedman, 2003; White, Virden, & Van Riper, 2008) may provide one direction on how to study the physical environment embedded within the OB learning experience. The literature on sense of place often defines the concept as having three components: the physical environment, human behavior, and psychosocial processes (Stedman, 2003). Studies that have previously explored OB programs embedded within specific areas and cultural contexts somewhat unsurprisingly were found to have the strongest outcomes related to the physical environment (Jirásek, Jirásková, et al., 2017; Jirásek, Veselský, et al., 2017; Lowan, 2009). Despite this, none of the aforementioned

studies explored these relationships in a way that grounded the research in a broader sense of place theory. As OB presents the opportunity for individuals to experience a relationship with the physical environment in new and challenging ways (Hickman Dunne, 2018; Holden, 2004; Leberman & Martin, 2002; Mott & Martin, 2017), individuals may experience a shift within the tripartite framework that makes up a sense of place. This shifting sense of place may then have implications for the learning processes and outcomes.

Furthermore, while outdoor adventure education does not explicitly hold connectedness to nature as one of its primary goals, the wide variety of writings within the field of environmental psychology could help provide insight into how the physical environment influences the learning process. For example, concepts such as the affective forecasting of experiences in nature (Nisbet & Zelenski, 2011), linked pathways between nature and general health (Kuo, 2015), and the mental health benefits of outdoor recreation (Lackey et al., 2021) all indicate that individuals feel mentally and physically better when immersed in natural environments. These shifts linked to elements of the physical environment potentially hold implications for the learning experience in outdoor adventure education. Despite this possible connection, there are currently few studies exploring these relationships.

The physical environment represents an element of the OB learning experience that is inextricably linked to other parts of the process. The physical environment of OB courses helps to facilitate challenge (Hickman Dunne, 2018) while also connecting individuals to each other (Lowen, 2009). If the field is to develop effective models of learning in the setting of outdoor adventure education, as Hattie et al. (1997) called for over 20 years ago, these relationships need to be explored further. Research opportunities can take advantage by examining the role of ‘place’ in any one of the remaining 71.4% countries with OB programming yet to be studied. The research recommendations indicate ways forward in which the field of outdoor adventure education research can begin to explore these gaps in understanding.

Process

The following section focuses on the OB process, specifically exploring course activities that facilitate learning and the outcomes that correspond to these activities. In examining OB learning processes broadly, the relationships with other participants, course challenges, and instructor facilitation were all identified as elements of the OB experience that impact participant learning. Regarding expedition-based programs, the solo camping experience and the final expedition have both been retrospectively cited as specific course elements that also contribute heavily to the learning outcomes. A broader understanding of the learning outcomes linked to these course elements does not seem to have progressed significantly since the broad social and emotional components identified by Hattie et al. (1997). Despite a lack of progress on this front, linking outcomes back to course elements and the learning process does show a significant

step forward in the academic literature since 1995. We specifically explore the role the instructor plays in the learning process for individuals as Hattie et al. (1997) identified this as a major gap in the literature over 20 years ago. Finally, as in previous sections, this section concludes with recommendations for future research on how to better understand the learning processes of OB. Specifically, we recommend utilizing a life course approach to studying the relationship between the learning process and outcomes. Future researchers can also look at the ways specific OB organizations have built upon the general OB model in attempts to improve program efficacy.

The growth of social relationships (closely related to the people category previously outlined) and challenge (closely linked to the place category previously outlined) are two course components that have been consistently identified across studies as being impactful for OB participants. Regarding social relationships amongst participants, this has been found to be an impactful course element in a variety of contexts. Locations in which studies have identified the importance of social relationships for OB learning include: New Zealand (Martin & Leberman, 2005), Australia (Neill & Dias, 2001), Hong Kong (Sibthorp et al., 2018), the Czech Republic (Jirásek & Dvorackova, 2016), and the United States (Goldenberg, Klenosky, McAvoy, & Holman, 2002; Goldenberg, McAvoy, & Klenosky, 2005). As outlined previously in the section on people, Maxwell et al. (2008) exemplify the role social relationships play in the OB experience. In purposively sampling individuals who dropped out of an OB program focused on at-risk individuals, a lack of social integration into the program was cited as one of the predictive components leading to dropout (Maxwell et al., 2008). Given the need for teamwork on OB courses due to the challenging nature of the experience (Goldenberg et al., 2002; Goldenberg et al., 2005; Greffrath et al., 2011), social relationships seem to be a key component for success.

In examining the other end of the dialectic relationship between course components that lead to positive learning outcomes, course challenges, which are often an impetus to form close social bonds on OB courses, have also been cited frequently as an impactful element of the OB experience (Goldenberg et al., 2002; Goldenberg et al., 2005; Tolich, 2012). The challenge explored in this section is often facilitated by the physical environment in which OB courses are situated (Hickman Dunne, 2018). While these challenges leading to growth exist across OB course types (Greffrath et al., 2011), two specific challenging elements that have been frequently cited in previous studies are traditionally associated with expedition-based programs. These two course components are the solo camping experience and the final expedition in which participants autonomously complete a task without the guidance of the instructor (Bobilya et al., 2014; Gassner et al., 2006; Gassner & Russel, 2008; Kalisch, Bobilya, & Daniel, 2011). Bobilya et al. (2014) specifically explored perceptions of the final expedition for program participants at the North Carolina OB School. They found that the autonomy and teamwork associated with the experience were both impactful for participants (Bobilya et al., 2014). In a similarly structured study, Kalisch et al. (2011) explored participant perceptions of the solo camping experience. The participants reported feeling both peaceful and anxious while also taking the time to reflect (Kalisch et al., 2011). While it

is beyond the scope of this review to cover all the forms of challenge that have been documented by the OB literature, these examples indicate that both internal reflection and external collaboration facilitated by challenging experiences are part of the learning process in OB courses.

We now turn our attention to the influence of course instructors within the OB experience. As mentioned previously, this is a specific element of the learning process that Hattie et al. (1997) noted as under-researched. Since 1995, a wide variety of studies have been conducted examining the role of instructors and the broader administration within the OB experience (Hovelynck, 2001; Galloway, 2007; McKenzie, 2003; Sibthorp et al., 2018). Many of the reviewed studies list instructors as an impactful element of OB courses without exploring the relationship in further detail (Gassner & Russel, 2008; Martin & Leg, 2002; McKenzie, 2003; Sibthorp et al., 2018). This evidence indicates that course instructors play the primary role in facilitating the OB learning process but does not provide much context for the nature of the process.

As a beneficial complement to some of the previously cited studies, researchers have collected qualitative data to provide further context on the role of OB instructors. Interviews conducted by Hovelynck (2001) in Belgium with OB instructors found that group development is key to their educational model. The conversations they facilitate transition from technical aspects of an activity to the communication methods themselves, then to the group “owning up” to communication development, and finally to the development of a group theme. This process inherently weaves personal and group learning together (Hovelynck, 2001). Furthermore, Martin, Dench, and Paku (2016) conducted a broad study using semi-structured interviews to examine how school and executive directors perceive the culture of OB New Zealand. The findings show that these managerial positions believe that, while language has changed over the years, the primary learning outcome of this program is still self-discovery and that course instructors play a key role in facilitating experiences (Martin et al., 2016). This conceptualization of instructor roles aligns well with impactful elements of the learning process that have been previously cited. In both the solo camping experience and the final expedition, the instructor facilitates a learning process with the goal of eventually fully turning the leadership over to the group and individual (Bobilya et al., 2014; Gassner et al., 2006; Gassner & Russel, 2008; Kalisch et al., 2011). Within this thread of thought, OB instructors can be seen as catalysts coordinating learning experiences across various interrelated parts within an outdoor adventure education course.

Following the review of the course components that help to contribute to the OB learning process, we turn our attention briefly to the outcomes associated with these course components. While understanding how these course elements contribute to the learning process represents significant progress since Hattie et al. (1997), the understanding of course outcomes has seemingly not advanced as much. The inconsistent language across studies describing social and emotional growth has likely hindered the ability for studies to build upon each other. The following summarizes the social and emotional growth outcomes identified by studies in this section: savoring, mindfulness, and positive affect (Kirwin et al., 2019); initiative, self-confidence, and kindness

(Sibthorp et al., 2018); self-confidence, self-awareness, and time management (Martin & Leberman, 2005); accomplishment, autonomy, community, and teamwork (Bobilya et al., 2014); self-confidence and reliance, interpersonal effectiveness, and mental toughness (Bobilya, Kalisch, Daniel, & Coulson, 2015); and resilience (Neill & Dias, 2001), to name a few. These all fall under the umbrella of “personal growth” (Freeman, 2011) or “self-discovery” (Millikan, 2006), which are at the heart of the OB philosophy and programming.

We conclude this section with recommendations on how researchers examining OB programming can further their understanding of the learning process. It is notable that many studies simply examined the outcomes linked to course components without probing the learning process further. Taking a life course approach to understanding post-course outcomes (e.g. Colley, Currie, & Irvine, 2019; Tsang & Havitz, 2014) represents one direction that researchers could take to better understand how learning processes are effective beyond pre- and post-program measures. In this approach, researchers purposively sample individuals with a common experience (in this case, an OB course), and have participants reflect on the meaning and nature of the experience later in life (Colley et al., 2019; Elder, 1994; Tsang & Havitz, 2014). This can potentially help researchers understand how course components such as social relationships or the solo camping experience potentially trigger a cascading effect that leads to positive outcomes later in life (Masten & Cicchetti, 2010). This approach could help to add depth and understanding to the relationship between learning outcomes and the educational process.

Additionally, as has been done extensively with the dramaturgical approach to the OB experience (Jirásek, Jirásková, et al., 2017; Jirásek, Veselský, et al., 2017; Martin, 2011; Martin et al., 2002), purposively sampling and studying unique variations on the OB experience may help provide a better understanding of impactful learning processes. As Martin et al. (2002) did, these approaches to the learning process can then be piloted in other settings. These program variations can help provide new directions on how to further develop OB programming more broadly.

DISCUSSION AND CONCLUSION

We now conclude this scoping review by making a brief case for the incorporation of broader theory within the academic literature studying OB. In examining the studies reviewed within this manuscript, the following statement by Hattie et al. (1997) remains relevant: “Adventure programs have been conducted as if they operated in isolation from the educational world. There is little incorporation of research on group dynamics, attitude change, educational theory, and cognitive processes” (p. 77). The reviewed studies have provided rich descriptions of what makes the learning process effective on OB courses, but there have been only limited attempts to reintegrate findings into broader educational or developmental conversations following these descriptive results. In studying psychological processes such as learning in an OB program, it is important for theory to remain at the forefront of discussions (Bringmann & Eronen, 2016). This can

help to maintain a strong conceptual understanding of the relationships between course elements and provide direction on how to improve programming.

Considering perspectives such as the relational developmental systems metatheory (Lerner, 2018) in OB research may provide a useful shift in perspective for the future of the academic literature. This theory about theories acknowledges that “change across life occurs through mutually influential relations between individuals and their contexts” (p. 18, Lerner, 2018). This perspective presents the opportunity to acknowledge many of the tensions that we have probed throughout this review and incorporate them into the study design. These include but are certainly not limited to the relationship between the cultural roots of a program and the cultural roots of the participants, the connection between the challenge presented via the physical environment and the growing social relations between participants, and the relationship between participant backgrounds and the corresponding learning outcomes. Each of these elements creates a “layer” to the learning experience that is in dynamic tension with the other layers. The broader fields of human development and education have approached this tension through more specific theories, such as self-determination theory (Ryan & Deci, 2000) or transformative learning theory (Mezirow, 1997), which bring forward new perspectives for OB and outdoor adventure education researchers more broadly.

What other broader perspectives should researchers consider? It is our hope that the conceptual (e.g. utilizing sense of place as a research lens) or methodological (e.g. regression discontinuity for quasi-experimental designs) recommendations at the end of each section (people, place, and process) can provide some direction for these future directions. Obviously, there are innumerable theories and lenses for outdoor adventure education researchers to examine beyond those recommended in this paper, and we look forward to seeing the innovative perspectives that evolve in the future.

With this final recommendation, we return to the original goals of this paper. This scoping review was intended to provide perspective on how the academic literature has developed since the prominent meta-analysis conducted by Hattie et al. (1997) and provide recommendations for future directions for the field of study. Research has moved forward on several fronts, such as better incorporating participant background into studies, documenting effective program elements, and better understanding the role the instructor plays in the OB experience. Other areas, such as understanding the role the physical environment plays (place) within the OB experience and understanding the nature of outcomes beyond social-emotional growth have not progressed as quickly. We hope that by examining the other areas of academic literature recommended throughout this article, these gaps in knowledge can be explored more effectively in the future.

There is evidence that OB and outdoor adventure education more broadly provide impactful experiences for participants, and growing evidence supports this claim on an international scale. But as Hattie et al. (1997) stated, these programs are not inherently good. Academic research has the responsibility of helping OB and the broader field of outdoor adventure education build toward more effective programming. Progress has been made on this front since Hattie et al. (1997), and it is our hope that this scoping review can help this progress continue in the future.

Table 3. A brief overview of the studies included for review in this manuscript

Authors	Program Provider	Study Population	Study Methods	Sample Size
Ang et al., 2014	Outward Bound Singapore	At-risk youth participating in a five-day center-based outdoor adventure program	Youth At-Risk Program Evaluation survey administered at three points: pre-program, one month post-program, and three months post-program; behavioral data (number of classes and extracurricular activities skipped in the past week) collected from school pre-program and 3-months after the program	136 (Control=60, Treatment=76)
Benham & Shepard, 1995	Unspecified, program took place on the shore of Lake Michigan in the United States	African American school leaders participating in a center-based professional development program	Video recorded participants' activities at the professional development retreat for African American educators throughout the week; each participant participated in an interview at the conclusion of the week and three follow-up interviews over the following six months	5
Bobilya et al., 2014	North Carolina Outward Bound School	Individuals enrolled in expedition-based programs of 7-50 days	Final Expedition Survey soliciting open-ended responses completed on the last day of the final expedition	331
Bobilya et al., 2015	North Carolina Outward Bound School	Individuals enrolled in expedition-based programs of 8-28 days	Post-course survey: open-ended questions on content learned and the intention to transfer learning; two-o-year follow-up: open-ended questions on content learned and the ways skills were utilized post-course; the results were independently coded by three researchers.	Post-Course=369, Two-year=30
Bobilya et al., 2017	North Carolina Outward Bound School	Individuals enrolled in expedition-based programs of 4-28 days	Open-ended survey questions completed on the final day of programming on post-program learning and growth, the responses were coded and themes developed inductively	189

Authors	Program Provider	Study Population	Study Methods	Sample Size
Broadbuss et al., 2013	Baltimore Chesapeake Bay Outward Bound	Baltimore police officers and middle school students participating in a one-day teambuilding program	Surveys used to measure both resilience and self-constructs; Outward Bound Outcomes Instruments was used to measure self-constructs; the Multidimensional Relationship Questionnaire was used to measure resilience	27
Ewert, 2014	Outward Bound for Veterans	United States Veterans in a five-day outdoor adventure program	Surveys used to measure both resilience and self-constructs; Outward Bound Outcomes Instruments was used to measure self-constructs; the Multidimensional Relationship Questionnaire was used to measure resilience	310
Faircloth & Bobilya, 2013	North Carolina Outward Bound School	Individuals enrolled in expedition-based programs of 4-28 days	Psychometric investigation of the North Carolina Outward Bound School Course Impression Survey, an adapted version of the Outward Bound Outcomes Inventory; analysis included descriptive statistics, inter-item correlations, test-retest reliability, exploratory factor analysis, and internal consistency	268
Fischer & Attah, 2001	North Carolina Outward Bound School	Teens in foster care participating in a seven-day outdoor adventure course	Pre- and post-program surveys consisting of both scaled and open-ended questions focusing on program participant behavior and experiences were given to the program participants, foster care workers, and foster parents at three points: pre-program, post-program, and three months post-program.	23
Fouhey & Saltmarsh, 1996	Thompson Island Outward Bound Education Center	University students enrolled in a service learning program	Examined course components through the lens of various experiential education and outdoor adventure theories.	6-10
Freeman, 2011	Historical Analysis	N/A	Historical analysis of prior research, writings from prominent educators, and other relevant documents.	N/A

Authors	Program Provider	Study Population	Study Methods	Sample Size
Galloway, 2007	North Carolina Outward Bound School; Voyageur Outward Bound School	Outward Bound course leaders	Outdoor Leader Experience Use History surveys and Factorial Decision Vignettes (providing leadership choices for various outdoor adventure-related medical decisions) provided to trip leaders, responses analyzed via a hierarchical linear model.	103
Gassner, 2008	Outward Bound Singapore	Adults who participated in the Classic Challenge course (21 day expedition)	Survey with participants rating how impactful different course components were on their current lives	318
Gassner & Russell, 2008	Outward Bound Singapore	Adults who participated in the Classic Challenge course (21 day expedition)	Survey with participants retrospectively examining the overall impact of their Outward Bound course on their current lives and how impactful various aspects of the experience were	318
Gassner et al., 2006	Outward Bound Singapore	Adults who participated in the Classic Challenge course (21 day expedition)	Questionnaire asking participants to rate the perceived impact of their Outward Bound course and the course components contributing to these impacts	318
Goldenberg et al., 2002	North Carolina Outward Bound School	Individuals enrolled in expedition programs of 4-21 days in length	Questionnaire asking participants to identify impactful course components, the outcomes related to those course components, and ultimately the broader values impacted by those outcomes; responses arranged into hierarchical value maps	216
Goldenberg et al., 2005	North Carolina Outward Bound School	Individuals enrolled in expedition programs of 4-21 days in length	Questionnaire asking participants to identify impactful course components, the outcomes related to those course components, and ultimately the broader values impacted by those outcomes; responses arranged into hierarchical value maps	216

Authors	Program Provider	Study Population	Study Methods	Sample Size
Greffrath et al., 2011	Outward Bound South Africa	3rd-year university students participating in two different outdoor adventure education programs	A crossover research design with two separate experimental groups participating in either a centre-based adventure program or an expedition-based wilderness program; the groups switched treatments after five months; groups completed pre- and post-program "Review of Personal Effectiveness and Locus of Control" surveys for each treatment; post-treatment semi-structured interviews and focus groups were also conducted	28
Hanna, 1995	Colorado Outward Bound School	Youth enrolled in programs of 10–11 days	Survey measuring minimal impact knowledge, basic ecological knowledge, wilderness issue attitudes, as well as predisposing factors, behavioral intention, and self-reported behavior for Outward Bound and Audubon Field Ecology Camps at three time points: pre-program, post-program, and six months after program conclusion	32
Harper et al., 2014	Outward Bound Canada	Canadian veterans participating in a seven-day outdoor adventure education program	Utilized the Outward Bound Outcomes Inventory to measure psychosocial constructs pre-program, immediately post-program, and six weeks post-program; 12 semi-structured interviews examining course outcomes, health and wellbeing, and the course in relation to participant's career and military service were also conducted	Survey=50, Interview=12
Hickman Dunne, 2018	Outward Bound Trust (United Kingdom)	School groups based in the United Kingdom on outdoor expeditions	Semi-structured interviews with Outward Bound Trust staff; an ethnography of four school group trips through the Outward Bound Trust; paired follow-up interviews with participants including mood board activity	Staff=26, Participants=44

Authors	Program Provider	Study Population	Study Methods	Sample Size
Holden, 2004	North Carolina Outward Bound School	Adults participating in an expedition-based program of at least 14 days	A quasi-experimental design with some courses being informed about the presence of a satellite phone and others not; all the participants filled in a post-course survey measuring wilderness experience, risk-taking, the perception of safety, and level of stress.	261
Hovelynck, 2001	Outward Bound Belgium	Outward Bound course leaders	Multiple semi-structured interviews with course leaders discussing 2–3 moments per day per program and how they were facilitated	8
Hyer et al., 1996	Pacific Crest Outward Bound School; North Carolina Outward Bound School	Vietnam War veterans with chronic PTSD participating in a five-day outdoor adventure education program	Veterans in a multi-week PTSD treatment program administered a 5-day Outward Bound program in lieu of scheduled treatment (the control group did not attend the Outward Bound program); veterans subject to a battery of surveys measuring symptom change in PTSD subjects pre-program, immediately post-program, and on exit from the multi-week treatment; the Outward Bound participants also filled in a survey and provided open-ended comments on their perception of the experience	219 (Control=111, Treatment=108)
Jirásek et al., 2016	Vacation School of Lipnice-Outward Bound Czech Republic	Adults participating in a 12-day expedition	Mixed method design including frequency charts with participants identifying close relationships in the group recorded at three points throughout the expedition, post-course reflective essays, a post-course survey on group cohesion, and mid-course and post-course mind maps exploring how participants feel about the Outward Bound course	26
Jirásek, Jirásková et al., 2017	Vacation School of Lipnice-Outward Bound Czech Republic	Adults participating in a 12-day expedition	Post-course unstructured interviews and the development of systemic constellations; content analyzed for spiritual elements of the experience	12

Authors	Program Provider	Study Population	Study Methods	Sample Size
Jirásek, Veselský et al., 2017	Vacation School of Lipnice-Outward Bound Czech Republic	Adults participating in a 12-day expedition-based program	Unstructured interviews on the spiritual aspects of the expedition paired with the Prague Spirituality Questionnaire.	12
Kalisch et al., 2011	North Carolina Outward Bound School	Individuals enrolled in expedition-based programs of 7-45 days	Participants given an open-ended survey on their perceptions of the solo experience during the last hour of the solo, responses coded for salient themes and frequency tables constructed	335
Kirwin et al., 2019	Outward Bound Canada	Individuals enrolled in an eight-day expedition-based program	Three previously developed surveys were used to measure savoring, mindfulness, and positive affect in both the control (no Outward Bound program participation) and experimental (participation in the eight-day Outward Bound mindfulness program) groups at three time periods: pre-program, immediately post-program, and three months post-program	30 (Control)=16, Treatment=14
Klein & Riordan, 2009	Expeditionary Learning Schools Outward Bound	Educators in New York City	A qualitative case study analyzing hardcopy materials like student work, classroom observations, and teacher interviews; analyzed for salient themes by both authors	8
Klein & Riordan, 2011	Expeditionary Learning Schools Outward Bound	Educators in New York City	A qualitative case study comprising interviews, site visits, and document and artifact analysis; data were coded and analyzed via analytic memos, triangulation, and member checks	8

Authors	Program Provider	Study Population	Study Methods	Sample Size
Leberman, 2007	Outward Bound New Zealand	Female offenders to be released from prison within one year participating in a 20-day outdoor adventure education course	27 semi-structured interviews at the end of the course; follow-up interviews with 14 women three months after the end of the course; field observations, instructor reports, and case officer reports were also utilized; analyzed in a phenomenological manner	27
Leberman & Martin, 2002	Outward Bound Czech Republic, Outward Bound New Zealand	International participants in the Czech Republic; female offenders in New Zealand; both participating in multi-day outdoor adventure education programs	Two separate studies analyzing comfort, risk, and the relationship these concepts have to learning; for Outward Bound Czech Republic, participants completed an open-ended questionnaire 6-months after course conclusion; for Outward Bound New Zealand, interviews conducted post-course and three months after course conclusion.	Outward Bound Czech Republic=25, Outward Bound New Zealand=27
Lowan, 2009	Outward Bound Canada	Former Giwaykiwin students, Outward Bound staff members, Aboriginal Elders, and community members involved with the program	A collaborative ethnography study consisting of interviews, field journal from researcher, collaborative examination of participants' course journals, and course artifacts	9
Martin & Legg, 2002	Outward Bound New Zealand	Individuals enrolled in nine-day and 22-day expedition-based courses	A mixed method longitudinal study, administering a multidimensional self-concept questionnaire pre-and post-program; three open-ended questions were administered pre-program, post-program, and six months after the program examining course atmosphere; questions examined course outcomes and what elements of the course contributed to them	93

Authors	Program Provider	Study Population	Study Methods	Sample Size
Martin, 2011	Vacation School of Lipnice-Outward Bound Czech Republic	Self-examination and reflection	Autoethnography using participant observation with the author examining the personal meaning of the Outward Bound experience	1
Martin & Leberman, 2005	Outward Bound New Zealand	Participants who were 16 years and older participating in a variety of outdoor adventure courses	A mixed method longitudinal approach, conducting questionnaires on the first day, last day, and 12 weeks after program completion; surveys and open-ended questions examined learning around a variety of concepts such as leadership, self-confidence, and social competence	157
Martin et al., 2016	Outward Bound New Zealand	School and executive directors	A case study framework on organizational culture with primary data being collected through semi-structured interviews; findings further triangulated via analysis of Outward Bound New Zealand annual reports and researchers' firsthand knowledge of Outward Bound	14
Martin et al., 2002	Outward Bound Czech Republic, Outward Bound Australia	Individuals enrolled in 14-day expedition-based programs	Open-ended survey questions were administered to participants 6-months after all courses; secondary follow-up was distributed to two courses one year after completion and two years after completion for the third course; examined the impactful elements of Outward Bound courses utilizing a dramaturgical approach to education	70
Martin et al., 2009	Colorado Outward Bound School	7th and 8th grade students enrolled in an Expeditionary Learning Outward Bound School	Examining the influence of a watershed education unit; children's Environmental Virtue Scale survey administered pre- and post-program to participants; results compared to a convenience sample of eighth-grade students in Colorado serving as a control group	112 (Treatment=45, Control=67)

Authors	Program Provider	Study Population	Study Methods	Sample Size
Maxwell et al., 2008	Outward Bound New Zealand	Young adults facing long-term unemployment who are participating in a 21-day residential program	Analysis of Outward Bound participant data including demographics, external environmental factors, internal environmental factors, and social integration; interviews conducted with a sample of 10 program dropouts	Survey=585, Interview=10
McKenzie, 2003	Outward Bound Western Canada	Adults, youth, female survivors of abuse, and at-risk youth participating in outdoor adventure courses ranging from 7 to 36 days in length	An interpretive case study examining Outward Bound student learning processes; data collection consisted of a post-program questionnaire, interviews, researcher observation of group discussions	Survey=92, Interview=20
Millikan, 2006	Historical Analysis	N/A	Historical analysis of Outward Bound programming	N/A
Mott & Martin, 2017	Outward Bound New Zealand	Individuals enrolled in various outdoor adventure courses	A mixed methods design consisting interviews, incident report and quality control form analysis, and pre- and post-program evaluation questionnaires analyzing perceptions of risk and safety on Outward Bound New Zealand courses	Survey = 6792, Interview = 5
Neill & Dias, 2001	Outward Bound Australia	Young adults on a 22-day expedition oriented program	A quasi-experimental design; the experimental group completed a Resilience Scale for pre- and post-program measures and the Social Support Scale upon course completion; control group only completed Resilience Scale for pre- and post-program measures	72 (Treatment=41; Control=31)
Newbery, 2004	General Outward Bound programming	Female Outward Bound instructors	A qualitative design comprising semi-structured interviews conducted over 6 months between 1999-2000, individual reflective journal transcripts and a group interview.	4

Authors	Program Provider	Study Population	Study Methods	Sample Size
Pommier & Witt, 1995	Outward Bound Family in Need of Services program	Adolescent status offenders and parents participating in a multi- month support program	A longitudinal quantitative study; surveys were administered before the program start, 28 days after the program start, and four months after the program start; control group was not exposed to the Family in Need of Services program	107 (Treatment=61; Control=46)
Purdie & Neill, 1998	Outward Bound Australia	Under-achieving Japanese students participating in a 22- day outdoor adventure program in Australia, program accompanied by a language development component	Control and experimental groups completed the "About Myself" self-concept instruments at three time periods: pre-course, immediately post-course, and six weeks post-course; experimental group also completed "Evaluation of Course" instrument immediately post-course; multivariate repeated measures analysis was utilized and change scores were compared to previous findings within primarily Western populations	72 (Treatment=32; Control=42)
Scheinfeld et al., 2017	Outward Bound for Veterans	United States Veterans participating in a six- day outdoor adventure education program	A quasi-experimental study with experimental and control groups completing pre- and post-program surveys measuring demographic information, masculine role conformity, and mental health symptoms	199 (Treatment=181; Control=18)
Sibthorp et al., 2018	Outward Bound Hong Kong	Secondary and university students participating in a variety of outdoor adventure education programs	A pre- and post-course administration of the Outward Bound Hong Kong Performance Evaluation Questionnaire; survey results used to explore how course outcomes were related to course language, sense of belonging, and teacher-student relationship	2292
Tolich, 2012	Outward Bound New Zealand	Self-examination and reflection	An autoethnographic study from a researcher-participant lens on the meaning of the Outward Bound experience	1

Authors	Program Provider	Study Population	Study Methods	Sample Size
Vernon, 2015	United States, unspecified program provider	Students from a diversity program participating in an unspecified Outward Bound program	A qualitative study consisting observations coupled with jottings, field notes, photographs, and audio recordings; interviews with students and administrators	N/A
Walker et al., 2005	Outward Bound Australia	Individuals with recent brain injury participating in an Outward Bound course embedded in a broader treatment program	Upon completion of the program, participant goals were analyzed for completion; pre- and post-measures using the Depression, Anxiety, and Stress Scales, the General Well-Being Questionnaire, and the European Brain Injury Questionnaire were all gathered; post-program efficacy scores for different program elements and the program as a whole were gathered	11
Wang et al., 2006	Outward Bound Singapore	Female secondary school students participating in a five-day outdoor adventure education program	Pre- and post-program surveys were administered to participants measuring leadership, social skills, interpersonal skills, self-esteem, motivation for participating in the program (pre-program only), and satisfaction with the experience (post-program only)	149

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