

TOWARD AN ANTI-OPPRESSIVE, TRAUMA-INFORMED,
PRACTICE IN OUTDOOR THERAPIES

by

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Acronyms

ACE	Adverse Childhood Experience
AEE	Association for Experiential Education
ART	Attention Restoration Theory
AT	Adventure Therapy
ATES	Adventure Therapy Experience Scale
NMT	Neurosequential Model of Therapeutics
OB	Outward Bound
OBH	Outdoor Behavioral Healthcare
PET	Psycho-Evolution Theory
PTSD	Post Traumatic Stress Disorder
SRT	Stress Reduction Theory
TA	Therapeutic Adventure
TIP	Trauma Informed Practice
WT	Wilderness Therapy

Abstract

Children and youth are exposed to health risks stemming from urbanization, technification, family stressors, climate change and the Covid-19 pandemic. Outdoor therapeutic approaches offer social workers a range of protective interventions that are strengths-based, build coping skills, can be context specific and are shown to be effective in building resilience and wellbeing in their users (Combs et al., 2016; Harper et al., 2018; Bettman, 2018; Harper & Dobud, 2021). Despite the demonstrated effectiveness of outdoor interventions, little is known about the mechanisms of therapeutic change, and several theoretical perspectives have been offered to explain the therapeutic process. This paper reviews theoretical frameworks and practice models from recent literature, identifying an alternative, holistic approach to outdoor therapy. Outdoor therapy models are considered that exhibit core elements of outdoor therapies, identifying an approach that is locationally flexible and transferrable in settings ranging from urban to wilderness. Little research has been published reflecting preventative, trauma informed approaches to outdoor therapies (Johnson et al., 2020; Harper & Dobud, 2021), and anti-oppressive approaches to outdoor therapies are similarly unexplored. Opportunities for preventative, trauma-informed interventions are discussed, including anti-oppressive policy considerations bearing on implementation, to promote equity within the field of outdoor therapy, and to build generations of gritty youth.

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Introduction

Despite being the seventh happiest nation on earth, Canada's children and youth display remarkably low levels of activity, despite a uniquely favorable landscape for physical activity, as well as robust availability of facilities and programs, along with equally supportive social policies (Gabrielsen & Harper, 2018). Linked to this increase in urbanization is technification, that is, the use of social media, smart phones, interactive devices, music and TV (Gabrielsen & Harper, 2018). Significant increases in depression, anxiety, behavioural and mood disorders, subthreshold levels of mental health disorders, as well as the underreporting of same, continue to be present as risk factors in young people (Gabrielsen & Harper, 2018). A large-scale study reported in *Nature* surveyed 10,000 young people in ten countries between 16 and 25 years of age, and found that, directly associated with climate change, youth are experiencing worry, fear, indifference, anxiety, sadness, anger and powerlessness (Thompson, 2021). In Canada, the Covid-19 global pandemic exacerbated social isolation, school closures, family stress, fears of contracting Covid, increased risk of exposure to abuse and even systemic racism, which adversely impacts student wellness, and inevitably, learning outcomes (Mental Health Commission of Canada, 2021). The combined effects of inactivity, urbanization and technification, climate change, Covid-19, as well as poor diet, parental neglect, and abuse, are overwhelming the capacity of children and youth to adapt and cope, let alone to thrive in their worlds (Eller and Hierck, 2021).

Outdoor therapies have been defined as “the prescriptive use of wilderness experiences provided by mental health professionals to meet the therapeutic needs of clients” (Combs et al., 2016, p. 3322). They represent a natural alternative that can complement and even replace medication. Harper et al. (2018) identify outdoor therapies as offering wider formulations of

therapy than the biomedical model. Thus, while biomedical models tend to focus health problems on a single client and are addressed by medication and talk therapy, outdoor interventions are situated within a constructivist paradigm that externalizes the source of unwellness (Corcoran, 2005).

Outdoor therapeutic interventions and, in particular, adventure therapy (AT), are well suited to social work, with its strengths-based approach, and therapeutic interventions shown to be effective in studied populations (Vankanegan et al., 2019). The structure allows for individual and group therapy, and as a community-based program is accessible to lower income youth (Vankanegan et al., 2019). Combs et al. (2016) provide an overview of outdoor therapeutic structure and suggest that components of treatment may include elements of cognitive behavioral therapy, family systems theory, attachment theory, choice therapy, mindfulness techniques, and often focus on diet and physical exercise. Indeed, outdoor therapies often engage people where traditional approaches fail (Bettmann et al., 2018).

This paper will highlight approaches to therapeutic outdoor interventions that reflect current understanding of social work practice as it applies to outdoor therapies. The main question guiding this literature review is: What are the core elements of outdoor and adventure therapies and how do they relate to social work? While there are a myriad of theoretical foundations and approaches in outdoor and adventure therapies, this review is limited to and informed by those that fall into the categories of humanistic, experiential learning and biopsychosocial models of nature-based interventions. As terminology is non-standardized, I will use WT, OBH, and outdoor therapies as respective authors do and at times, interchangeably.

The Author's Perspective

I am a man living in Canada who is an outdoor adventurer, a trauma survivor, a youth worker, search and rescue technician and outdoor adventure leader. I value environmental responsibility and social justice, especially on behalf of the oppressed and marginalized. As a university educated Caucasian North American male of European descent, I enjoy related privileges. I acknowledge a personal bias in favor of the outdoors. Nature-based self-care has been instrumental in my own healing journey, and spiritual practice informs my daily life. Trauma has affected me, both as a child and as an adult. Significant in my healing journey has been immersion in the natural world and adventurous experiences, including programs like Outward Bound. In addition, a growth mindset, the inherently empowering nature of self-care, and the compassion associated with service to others inform my day-to-day living. Deeply rooted in my faith as well as my family history is a commitment to social justice. Passion for empowerment, for justice, and for nature itself combine in my present desire to explore skill-based models that can support young people to meet challenges through engagement with nature for the rest of their lives.

Thematic Findings from Literature Review

Methodology

This paper reviews the theoretical foundations of nature based therapies, including research outcomes that clarify their effectiveness as well as uncover core elements of outdoor therapies. Current trends in social work knowledge of outdoor therapies are explored, as well as opportunities for trauma informed and anti-oppressive approaches. In identifying emerging and current themes in outdoor therapies, attention will be given to identifying theoretical orientation in two themes, including common core elements among outdoor therapies. Gaps and limitations

in the literature will be noted, as well as a discussion around possibilities for future research related to these approaches.

Seventeen recent journal articles are cited in this review, including three meta-analyses or umbrella reviews, fourteen systematic reviews, including cross cultural, comparison group, qualitative studies, as well as one trauma informed wilderness therapy program. Articles for the present paper were selected using search criteria using the terms wilderness AND/OR adventure AND/OR nature AND/OR outdoor AND/OR therapy in university and open access scholarly databases, including SAGE Publishing, JSTOR and Google Scholar, as well as through reference lists in selected journal articles. Ten articles focusing on biopsychosocial theories were identified, as well as four articles on experiential education. One article involving combat veterans has been included as it addresses the efficacy of non-traditional therapeutic approaches for some groups. Articles were excluded based on criteria including older date, differing focus of research question, and non-youth participants.

Core Theoretical Underpinnings

No single unifying theoretical framework exists that undergirds the several approaches to outdoor therapeutic interventions, and discussion of theory within the literature is limited. Fernee et. al. (2017) adopt a realist approach, which views the world as an open system, with evolving understanding regarding causality, and which seeks to identify the effectiveness of interventions on that basis. DeMille et al. (2018) link OBH to Adlerian and narrative family therapies. An overview of the two most influential theories follows, reflecting the literature that informs wilderness therapies. Experiential education provides a wide angle, orienting, and at times implicit perspective. Biopsychosocial theory reflects a fresh orientation linking theory and

practice, including an integrated, holistic theory (Harper et al., 2021). For this review, only Norton et al. (2014) discuss experiential education in any detail.

Experiential Education

Client-centred, holistic, and strengths-based approaches to treatment are grounded in humanistic theory and linked to American psychologist Carl Rogers as well as Abraham Maslow (Rogers, 2002; Maslow, 2017). Rogers, as well as psychologist Jean Piaget, explore the learner's role within experience itself. Piaget's constructivism reflected the belief in learning as process, mediated through experience (Piaget, 2001). The Association for Experiential Education describes experiential education as a philosophy of learning that influences several disciplines (Association for Experiential Education, n.d.).

Social workers, educators, therapists, and facilitators intentionally invite students in direct experience coupled with attentive reflection for the purpose of increasing understanding, enhancing skills, identifying values, and building capacity so that learners can make meaningful contributions within their contexts. Experiential practitioners range from teachers, therapists, corporate team building consultants, counselors, challenge course leaders, environmental educators, instructors, guides, coaches, and mental health support workers, to name a few. Experiential learning has found expression in many disciplines and settings, including outdoor and adventure education, informal education, place-based education, project-based learning, global education, environmental education, student-centred education, informal education, active learning, service learning, cooperative learning, and expeditionary learning (Association for Experiential Education, n.d.).

Mutz & Müller (2020) describe the benefits of interventions within outdoor based models as culturally popular and as such, appealing. They are associated with goals that may range from

simple recreation, to social, developmental, educational, and ultimately to therapeutic goals in applied settings. Experiential approaches, rooted in and related to humanism, are user centred, and thus can be structured to fit the needs of specific individuals and groups, including trauma survivors, adjudicated youth, substance users, combat veterans, clinical populations, and professional groups. Mutz & Müller's (2020) reviews and meta-analyses show that most studies have focused on self-concept and group dynamics.

Russell & Gillis (2017) link adventure therapy (AT), a related discipline, to experiential education during the 1930s. It was then that American philosopher John Dewey and Outward Bound founder Kurt Hahn laid the groundwork for current experiential education philosophy (Russell & Gillis, 2017). They agree with the Association for Experiential Education that experiential education is more philosophy than theory, where educators, therapists, and other professionals engage with learners in direct experience, intentional reflection to better understand their experience, and apply new knowledge to situations in a new way.

The experiential model is illustrated in Kolb's experiential learning cycle (see Appendix A). While learning can begin at any stage, the sequence typically begins with a concrete experience, such as an element on a high ropes challenge course ("What did we do?"), followed by meaningful personal reflection ("What does it mean for me in this moment?"), and a facilitated debrief including abstract conceptualization, with an opportunity for the application of new knowledge, typically through metaphor, to the student's personal life ("What does it mean back home?"). An exercise as simple as conceptualizing experience as metaphor can be instrumental in healing and wholeness (Harper, et al., 2019; Norton, et. al., 2014). Vankanegan et al. (2019) identify the distinctiveness of AT including seven key elements:

(1) engagement in action-centred therapy, (2) the use of an unfamiliar or novel environment or situation, (3) maintenance of a climate of change, (4) use of activities as continual assessment tools, (5) creation of a caring community, (6) a solution-focused approach, and (7) a shift from clinician as expert to clinician as facilitator to allow for a flexible therapeutic relationship (p. 129).

Expanding on this approach, Priest & Gass (1997) proposed a sequence reflecting the classic model upon which Outward Bound is based, to create a course environment supportive of positive outcomes in participants. The model takes a motivated and prepared student learner, and places them in a prescribed physical environment that is at once stimulating and in contrast to their customary milieu. Included are prescribed social environments as a primary group, typically of seven to fifteen members, thus allowing for group consciousness, conflict and resolution, individuality and trust, as well as support. They are presented with a characteristic set of problem solving tasks that are intentional, incremental, progressive, challenging yet achievable, and that creates a state of adaptive dissonance. This facilitates a sense of agency, efficacy and skill mastery that helps the learner reorganize the meaning and direction of their experience, which creates an empowering reorientation in the student's life (Priest & Gass, 1997).

OBH participants live in the wilderness in group settings, often learning primitive skills such as building fires without matches, backcountry navigation, and engaging in adventurous experiences such as rock climbing, rappelling, backpacking, and sea kayaking. The intended result includes a growth mindset with a recalibrated, and occasionally transformed perspective on one's life. Within the concrete experience phase of the experiential learning model, Mutz and Müller (2016) identify a common metaphor in experiential education of concentric circles similar to an archery target, depicting one's comfort zone in the centre, the bullseye. Outside the comfort

zone exists a larger “groan zone” (p. 106), along with a panic zone at the outer edge of the growth zone. Consistent with a strengths-based approach, many prefer more positive terminology than groan zone and instead refer to a stretch, learning or challenge zone. The challenge zone is often depicted with a larger surface area, in which the closer one is to the comfort zone, the safer learning feels, and the closer to the panic zone one is, the less emotionally safe one feels, interfering with the learning process. Experiential approaches build self-efficacy, a growth mindset and support the neuroplasticity that is instrumental in trauma recovery (Harper, Rose, & Segal, 2019).

Biopsychosocial models

The biopsychosocial approach to wellness affirms an interconnectedness between the biological, psychological, and social realms of a person’s life, their health, and their world (Engel, 1977). In contrast to the reductionistic and disease focused orientation of the biomedical model, the biopsychosocial model aspires to be holistic and client-centred, acknowledging service users’ own insights, outlook, and stories (Coventry et. al., 2021; see Appendix B). The model has evolved since its beginnings to include culture and spirituality (Borrell-Carrió et al. 2004). Practitioners may draw upon the biopsychosocial model in varying degrees, and it affirms the wholeness of the individual, the interconnected of people with their environment, and affirms that a complexity of variables influence wellbeing (Engel, 1977).

The therapeutic setting, that is, the natural environment, receives specific attention in outdoor therapies (Brymer et al., 2020). Early theoretical frameworks, as recalled by Brymer et al. (2020), included Ulrich’s psycho-evolution theory (PET) and attention restoration theory (ART). PET proposes that the openness of outdoor spaces with the presence of natural features evokes engagement, and pleasant, calm feelings that facilitate psychological and physiological

stress recovery (Camps, 2016). PET suggests that humans as a species have an affinity for natural environments that include safety as well as resource availability, for example, water, edible plants, and shelter (Brymer et al., 2020).

Attention restoration theory (ART) complements PET in that it suggests that natural environments promote feelings of being removed from day to day routines and preoccupations, and that nature's awe inspiring features like rivers, oceans, and sunsets draw relaxed attention without demanding mental effort. An effect is that natural environments replace cognitive fatigue with mental restoration. ART proposes that time in nature is not only pleasurable but can also support improved attention and concentration (Ackerman, 2021). Brymer et al. (2020) posit that ART proposes that commonplace human experiences in urban settings are mentally taxing and require taxing levels of sustained, effortful attention. Alternatively, nature offers abundant opportunity to re-establish attentiveness (Brymer et al., 2020).

Wilson's biophilia hypothesis describes the "innately emotional affiliation of human beings to other living organisms" (Kellert & Wilson, 2013, p. 31). The biophilia hypothesis suggests there is an inborn quality of humans to focus on life and life-giving processes, and to sense affiliation with nature because of our having lived in direct contact with it from earliest times. Brymer et al. (2020) note that these nature connection theories are conceived as a mental state and based on an individual difference narrative in which wellbeing correlates with one's emotional connection with the natural environment. In addition, the authors draw upon stress reduction theory (SRT) to provide clarification regarding the influence of nature on individual affect. SRT suggests that nature activates the parasympathetic nervous system, which can then reduce stress and autonomic arousal.

Chaudhury & Banerjee (2020) offer an alternative, with insight into ecopsychology and ecotherapy. Both ecopsychology and ecotherapy are aligned with the biophilia hypothesis and attention restoration theory (ART), as well as eco-existential positive psychology, which “proposes that cultivating our innate biophilic tendencies through involvement with the natural world enhances our well-being by helping us manage our existential anxieties” (p. 6). Chaudhury & Banerjee cite Roszak, who introduced the term ecopsychology in the wake of the environmental movement of the 1960s and 1970s, and offer a theory of psychology that seeks wellness both for the planet and for humans. As the term suggests, ecopsychology is a fusion of psychology and ecology, and suggests that people and planet both share an inherent awareness of reciprocity, which when roused can restore estrangement between participants and their environment (Chaudhury & Banerjee, 2020).

Norton (2010) considers the essential social role of group process. She offers a psychodynamic perspective, suggesting a number of possible explanations of why WT works, including that it may involve an existential reconstruction of foundations rooted in child development as a person recalibrates basic assumptions about self and others. She adds that the group dynamic provides opportunities for safe feedback and correction, while drawing upon attachment theory to suggest that the role of the wilderness instructor may serve as the positive parental figure that may assist adolescents to resolve developmental issues. Aligned with the Outward Bound process model noted above, Norton (2010) suggests that the wilderness itself is an unfamiliar environment that may provide the safe disequilibrium necessary to a re-orienting experience for the user. That is, it disrupts the familiar and allows for a supported opportunity for recalibrating one’s viewpoint, and perhaps reorienting one’s outlook on in life.

Harper et al. (2018) explore wildness in the authors' homelands, that is, Canada (Harper), Norway (Gabrielsen), and Australia (Carpenter), and identify five shared common elements that may frame WT across cultures. These include practical access to wilderness settings and parks, the ability to connect with celebrated landscapes and their inhabitants, a slower, meaningful pace and pedagogy, regaining a sense of centredness and equilibrium, and more holistic constructions around therapy than the biomedical model. The authors note experiences of disequilibria and/or equilibria across four dimensions, including learning (experiential and lived body), inspiration-metaphorical-spiritual-aesthetic, location as other, and place-based learning.

In a recent pursuit of a single cohesive theory, Harper, Fernee and Gabrielson (2021) conducted an umbrella review of fourteen studies that were themselves either systematic reviews or meta-analyses in order to identify “1) theories explaining nature’s role in outdoor therapies, 2) nature’s mechanisms of change in outdoor therapies, and 3) recommendations for practice and research within the field of outdoor therapies” (p. 1). Harper, et al. (2018) complement this as they contend that Canada, Norway, and Australia share common components in the practice of WT. Recalling their five core elements above, Harper et al. (2018) go on to describe four purposes for wild places and associated disequilibria/equilibria with student experiences, including experiential and lived-body learning, metaphorical, spiritual, and aesthetic inspiration, location as other, and place-based learning. The reviewed literature does not establish the extent to which these four purposes are transferrable outside of wilderness settings to other nature-based settings such as urban and community-based settings.

Like Harper et al. (2018), DeMille et al. (2018) speak directly to the therapeutic process when they record that key components of the OBH approach include seven elements, including multiday trips in the backcountry and extended periods living in the wilderness that are long

enough to allow for assessment, setting treatment goals, and development of a treatment plan that is both reasonable and within the impact expectations of the experience. Second, clients' active and immediate engagement is essential, as well as their commitment to the program. Third, group living, group discussions and regular group therapy support teamwork, belonging and positive social interactions (aside from solo experiences). A fourth component is one-on-one therapy sessions, including those which may be supplemented by family therapy. A fifth component is adventurous experiences, which enhance the treatment trajectory by fostering opportunities for eustress, that is, the positive use of stress within the WT program. A sixth component is appropriate engagement with nature both in the moment of experiential process and as a metaphor to inform client life more generally. A final component is a robust commitment to empathy and support during the therapeutic process (Gass et al. 2014).

Ferneer et al. (2017) surveyed literature reflecting treatment approaches that are reality-oriented, strengths-based, and experiential. They recognize that program design is an essential component of the therapeutic milieu and, undergirded by a realist philosophy of science, developed the wilderness therapy treatment model. Realists have particular interest in the interplay between social structures and human agency. In applied critical realism, the realist pursues understanding of how a cluster of approaches, such as WT, does or does not work under certain conditions.

The wilderness therapy treatment model of Ferneer et al. (2017) embraces three therapeutic elements that, combined, are understood to be exclusive to wilderness therapy, with each element instrumental in facilitating growth within the participants. The components are present at all times, in varying degrees, and following the progression of the program from start to finish. Aligned with the biopsychosocial model, three factors include the wilderness, or nature

itself; the physical self, including personal interactions and related activities facilitating learning and growth; and the social self, reflecting social interaction between youth participants and wilderness leaders and therapists, in which communal wilderness living is considered to be unique (Harper et al. 2018). Fernee et al. (2017) propose a modification of the above, where the psychological is combined with the social category, leading to an element of the psychosocial self. They used a three-part psychosocial construction that views human action through behavioral, emotional, and cognitive lenses.

A shift in perspective from nature as object to be exploited, to nature as co-participant, and even as co-therapist, reframes human orientation to nature from anthropocentric to one of shared partnership. Harper et al. (2018) refer to the false dualism of that which is human and that which is nature. Chaudhury & Banerjee (2020) observe that Indian culture since time immemorial has held that nature and humanity share an integral and indispensable bond that is mutually beneficial. Consistent with Wilson's biophilia hypothesis, it echoes Brymer et al. (2020), who use the term affordances, also discussed by Harper et al. (2019). Affordances are that which the environment offers the individual human, and yet in such a way that it implies a complementarity between the animal (in this case humans) and the environment (Brymer et al., 2020). In a similar vein, Harper et al. (2019) have written extensively on nature as co-therapist, thus reframing the natural world from that of an impersonal force to be conquered or exploited, to that of a living organism with an active, shared role that is instrumental in the healing process.

In order to lend understanding to this epistemological frontier, a holistic theory of integrated relatedness emerges from the systematic meta-analysis of Harper, et al. (2021). They acknowledge the large number of variables at play and conceive an "ontology of interconnectedness as a metatheory for outdoor healthcare" (p. 11), proposing that we consider

that our presence within nature is part of our experience as a part of nature, in which both we humans and nature are parts of a larger whole. In such a coherent systems approach, humans have a shared, equal role as partners in their own thriving, as well as in a reciprocal relationship with the outdoors. The holistic theory of integrated relatedness suggests there is a false dichotomy in too markedly separating between human and nature (Harper et al. 2021). Their review leaves open the question of theory, and suggests more careful analysis, or, alternatively (and perhaps concurrently), a holistic theory of integrated relatedness. The application of these theoretical constructs suggests that the answer to the question of core elements of applied outdoor therapies may have been in front of researchers and practitioners all along, intuitive, and interdependent.

Theoretical perspectives emerging out of humanism, including experiential learning and biopsychosocial models, offer helpful and at times implicit orienting epistemological frameworks. Client-centred, strengths-based, and holistic approaches are grounded in humanistic theory. Experiential learning, a philosophical or theoretical posture finding expression well beyond therapeutics, accesses aspects of human potential well beyond the medical models of traditional therapies. Biopsychosocial models recognise the interconnectedness of biological, psychological, and social dimensions of a person, their wellbeing, and their world.

Outcomes of Research

WT can be effective as an intervention (Harper & Dobud, 2021; Roberts et al., 2017). Participants showed clinically and statistically significant changes participating in their wilderness-based programs, and they sustained improvements up to a year and a half post-discharge (Roberts et al., 2017). Nature therapies are a residential treatment option shown to engage adolescent populations in substance abuse and mental health treatment, with positive

results, and accompanied by a growing body of positive social and psychological outcomes (Harper, et al., 2019). Outcomes related to these programs may range from a more positive self-concept and increased self-esteem, to improved school attendance, improved cognitive autonomy, increases in prosocial behaviour, greater group cohesion, prejudice reduction and abstinence in regard to substance use, to name a few (Combs et al., 2016; Coventry et al., 2021).

The specific mechanisms of healing, change and growth within outdoor therapies are not obvious (Fernee et al., 2017; Harper et al., 2019; Harper et al., 2021). Despite significant progress within OBH research over the ten years, researchers continue to be unable to answer how, why, and for whom outdoor therapies work (Fernee et al., 2017). While some approaches prove more effective than others, identifying the core components that yield positive results has been challenging (Harper et al., 2021). While empirical evidence showing positive outcomes continues to grow in support, qualitative understanding of outdoor therapies remains incomplete, with corresponding limitations on the development of theoretical explanations (Harper et al., 2019). The authors concede that the role nature plays in mental health and substance treatment may be more complicated than first assumed, despite being a central feature of practice, and often cited in the literature as a contributing factor of importance (Harper et al., 2019). OBH's documented effectiveness notwithstanding, researchers have struggled to reduce the therapeutic mechanisms inherent in outdoor therapies to a prescription. There remains a need for additional understanding around the conditions where these treatment approaches do not appear to be effective (Fernee et al., 2017).

In their meta-study, Coventry et al. (2021) found substantial and positive results for reducing anxiety, increasing positive affect, and with moderate effects for decreasing negative affect. Another meta-study of 103 observational and forty interventional studies found that

notwithstanding limitations in some studies, greenspace exposure is linked to statistically significant improvements with a wide range of health benefits (Twohig-Bennett & Jones, 2018). Johnson et al. (2020) summarize the growing empirical evidence base that supports the effectiveness of WT. Research on the impact of WT has reported client improvements on at least three levels, including when WT outcomes are measured by self-report or caregiver report, when WT effectiveness is compared to that of traditional mental health or alternate residential treatment, and regardless of whether WT participants are voluntarily or involuntarily transported and admitted to WT.

Client engagement is linked to positive outcomes. Dobud et al. (2020) found that given the close association of client engagement as a predictor of positive outcomes, feedback informed treatment (FIT) may be a cost-effective tool that is both reliable and accessible, to monitor engagement of clients with social workers. Gillis et al. (2016) use three measures to assess group engagement and its effect on outcomes at Enviro, an Alberta-based program, whose services include adjudicated youth. The authors found that when participants see their group as relatively more engaged, then those members will experience better outcomes (Gillis et al. 2016). Notably, such a relationship between within group engagement and outcomes appears to apply across different kinds of group-based therapeutic approaches. Such transferability of outcomes may be relevant in assessing the effectiveness of OBH in urban and community-based settings (see Areas for Additional Research, below).

Outward Bound's veterans' programs, despite being marketed neither as therapeutic nor incorporating therapy directly into its programs, assessed participants using at least six different scales (Bettmann et al., 2018). The study reports outcomes that are consistent with existing research and show military veterans' engagement in therapeutic adventure correlates with

improvements in measures of their psychological wellness (Bettmann et al., 2018). Combs et al. (2016), as well as DeMille et al. (2018), and Norton (2010) each used a version of the Youth Outcomes Questionnaire Self Report, and all three teams found youth make significant positive changes during outdoor therapeutic interventions.

Mutz and Müller (2016) identify core domains within mental health outcomes that outdoor experiences support. These domains include apparent stress, perceived agency, mindfulness, and personal wellness (Mutz & Müller, 2016). The authors go on to identify five areas that experiential learning is likely to improve, including self-actualization and sense of self, belonging and sense of connection, skill mastery, prosocial values and behaviour, and improvements in attitude and outlook (Mutz & Müller, 2016). Other positive outcomes include increased locus of control (a measure of empowerment) and improved family function (Mutz & Müller, 2016). Locus of control increases in WT, as established by Vankanegan et al. (2019) and Harper et al. (2018). It is apparent from the above that emerging evidence appears to confirm that WT is effective in improving adolescents' family functioning.

In sum, regardless of the assessment tools involved, outcomes of nature-based approaches are consistently positive. As participants face and overcome incremental, progressive challenges, and develop appropriation of skill sets and competence, they are confronted by new and empowering evidence about themselves, which itself may begin to form the foundation of a new life narrative of hope, and of their efficacy as agents of self-direction.

Therapeutic Process in Outdoor Therapies

For all the well-established and positive outcomes, and after decades of study, understanding remains in its infancy about exactly why outdoor therapies yield positive results (Coventry et. al., 2021; Harper et al., 2021). Norton et al. (2014) concede they continue to be

unable to determine why AT works or fails to work. Fernee et al. (2017) acknowledge this problem, in which researchers can quantify positive treatment outcomes yet have not isolated specific therapeutic mechanisms of change within the AT process. Norton et al. (2014) acknowledge growing interest in determining specific factors that are integral to therapeutic change. The authors note that the relative absence of peer reviewed research may create collateral challenges, including replication, generalizing findings, and funding (Norton et al., 2014). This very problem appears to have led to new ways of thinking about WT, including the holistic models noted.

Following a detailed description of the methodology for their umbrella review, Harper et al. (2021) were hard pressed to identify clearcut instruments for change across all fourteen papers reviewed. On one hand, the authors suggest redoubling their efforts with an ever more rigorous approach to defining change agents within nature therapies. Yet, ingeniously, they conclude “[c]onversely, or maybe concurrently, a holistic theory of integrated relatedness may be developed as a parallel expression of support for nature in therapy while the explanatory science catches up” (p. 1). The authors note that there is a substantial gap in knowledge regarding the mechanisms by which outcomes in outdoor therapies are realized and were unable to identify clear delineations of nature’s involvement with the therapies explored.

Core Elements Across Modes

Early frameworks including Ulrich's psycho-evolution theory and attention restoration theory, and Wilson's biophilia hypothesis highlighted the outdoors as having potential to be inherently therapeutic (Brymer et al., 2020; Kellert & Wilson, 2013). Experiential education models associated with Dewey and Hahn focused in part on the physically engaged self as a strength-based source of healing, as well as early engagement with group process for supportive

feedback (Parry & Allison, 2019). In the discussion that follows, four themes emerge that share common elements including location outdoors, the physically engaged self, intentional small group social engagement, and therapeutic interventions. Key ingredients have been considered, including time spent in the outdoors, physical engagement especially in progression that facilitate skill mastery, and supportive group process (Dobud et. al., 2017; Harper et al., 2021). Mutz & Müller (2016) similarly specify location outdoors, challenging physical experiences, a supportive social group and supportive process facilitated by trained leaders.

The Outdoors. Several benefits of spending time in nature emerge, ranging from reduction of stress hormone levels simply by walking in a forest, to reductions in anxiety, rumination, and depression (Bettman et al., 2018). Five shared elements may frame WT across cultures, including accessible access to large wilderness areas and parks, connections with celebrated landscapes and their residents, and slow, meaningful pace and pedagogy (Harper et al., 2018). Common elements of outdoor therapies include place-based components that recognize close nature and human relationship, and not restricted to certain settings but may take place in therapeutic approaches that include wilderness, nature, adventure, forest, outdoor, equine, animal-assisted, garden, horticultural, green space, and blue (water) space (Harper et al., 2021). Mutz & Müller (2016) found that WT interventions take place in an unfamiliar natural physical environment. Harper & Dobud (2021) describe a range of therapeutic approaches that can pass across domains and include place-based learning as well as nature-based stress reduction. Place-based learning includes a symbiotic view of nature-human kinship (Harper et al., 2021). In summary, there is flexibility to contextualize therapeutic interventions nearby in a variety of settings.

Essential to any approach, especially in the present period of firsthand, accelerated, human-caused environmental decline, are partnership models in which person-environment systems are viewed as interdependent. Therapeutic approaches will also include mental health approaches that consciously incorporate the outdoors and nature as active agents in the healing process. Elsewhere, Harper et al. (2019) identify core elements of nature-based therapy that include the practitioner's relationship with nature and nature as co-therapist.

The Physical Self. The wilderness therapy treatment model of Fernee et al. (2017) conceives of therapeutic factors, including the physical self. The physical self refers to personal engagement with the wilderness environment as well as activities that facilitate personal and growth learning. Harper et al. (2021) include elements of outdoor therapies as simply featuring active bodily engagement and therapeutic adventure. Johnson et al. (2020) identify adventurous experiences designed to promote eustress, or positive experiences of stress, which can involve individual challenge as well as group teambuilding challenges. Mutz & Müller (2016) describe WT interventions consisting of challenging activities with authentic and clear consequences that usually (though not always) involve cooperation with others. Harper et al. (2019) identify core elements of nature-based therapy including “full body engagement, play, and risk, and restoration and regulation” (p. xv).

The Social Self. In Fernee et al. (2017) and their wilderness therapy treatment model, the social dimension completes the three essential components, where the social self speaks to considerations related to group interaction between youth and group leaders, as well as therapists (Fernee et al., 2017). Wilderness living within the social group is considered unique, and a vehicle through which self-discovery and community can occur. In their review, Johnson et al. (2020) identify core components of WT including group living accompanied by group therapy.

Harper et al. (2019) identify elements of nature-based therapy that include play and risk, restoration and regulation, as well as belonging and bonding. Mutz & Müller (2016) describe WT interventions as taking place in a facilitated small-group social setting.

Therapeutic Outdoor Interventions. Therapeutic interventions may include the pursuit of healing, change, development, and growth and, as such, will include therapeutic components. WT interventions are guided by experienced, skilled instructors who ensure physical safety and emotional support during the program (Mutz & Müller, 2016). Core therapeutic components of WT include individual and group therapy sessions, and may be supplemented by family therapy sessions (Johnson et al., 2020). Therapeutic approaches will also include mental health approaches that consciously incorporate the outdoors and nature, in particular, as active components of the healing process (Johnson et al., 2020). Elsewhere, Harper et al. (2019) identify nature as including five core elements of nature-based therapy, including the social worker's own relationship with nature; nature as a co-therapist; full, immersive bodily engagement, including play and risk; restorative and regulative support; and human connection expressed as bonding and belonging.

Outdoor therapies often engage people who would not access traditional interventions. Bettmann et al. (2018) note the stigma-related reluctance of military veterans to seek treatment for mental health issues, as well as associated attrition in treatment, and the appeal of non-traditional approaches like AT. Veterans often show a reluctance to participate in traditional biomedical approaches to treatment, and the benefits of outdoor approaches for mental and psychological wellbeing pique interest as one approach to address this hesitancy (Bettmann et al., 2018). One strength of alternative and outdoor therapies like AT is that for some, it removes the stigma often associated with therapy (Bettmann et al., 2018).

WT may involve a short-term residential program of 6 to 12 weeks in length, in a group-based treatment setting, where youth live at a base camp and participate in short wilderness expeditions (Johnson et al., 2020). WT programs may include continuous trekking under an expedition model, which may last up to 60 days and include group-based hiking and backpacking. Long-term residential treatment may be group-based and last from 9 to 12 months, while living in remote settings and incorporating wilderness activities into everyday life. Settings may range from urban and community-based approaches to farms and wilderness (Johnson et al., 2020). Activities that may be the centrepiece for many programs are as varied as their settings allow, and may include wilderness travel and adventure, surfing, equine therapies, forest bathing, and even gardening.

As noted above, the positive therapeutic impact of outdoor therapies is well established in treating mental health issues, substance misuse, and trauma. It is possible that these common core elements of location, the physically engaged self, prescribed social dynamics in groups, and appropriate therapeutic interventions may be practiced in settings beyond wilderness, and that the backcountry-oriented wilderness therapy clinical model proposed by Fernee et al. (2017) might be replicable beyond its wilderness home and adapted to front country therapeutic settings.

Current State of Social Work Knowledge

AT is well suited to group-based social work approaches because of its client-centred, strengths-based approach, its facility with group-based interventions and holistic approach (Vankanegan et al., 2019). AT group-based experiences support clients to recognize and access strengths and resources within themselves, their group, and in their settings (Vankanegan et al., 2019). With a holistic focus on service users and the natural environment, along with AT's inherent flexibility, practitioners can support clients directly and personally (Vankanegan et al.,

2019). The social component creates natural opportunities to build self-efficacy, to express empathy, and to strengthen cooperation (Vankanegan et al., 2019).

By practicing these skills in real time with a therapist present, group members are able to reflect on how these skills will transfer into their own lives and relationships outside of the therapy group (Gass et al., 2012). The process of AT creates an atmosphere in which participants rely heavily on strong relationships built between peer members and group facilitators allowing insight into intra- and interpersonal issues (p. 129).

The social worker who is an outdoor leader is a participant observer in the therapeutic process. Combs et al. (2016) provide an overview of OBH structure and suggest that components of treatment may include elements of cognitive behavioral therapy, family systems, attachment theory, choice therapy, mindfulness techniques, and often focus on diet and physical exercise.

Consistent with biopsychosocial approaches, WT highlights the locus of problems as outside the self, and supports the client as self-advocate and as an agent of change. Vankanegan et al. (2019) note social workers' well-established practice of accessing activity-based group approaches to engage young people in positive clinical change. They argue that OBH is an emergent intervention used by clinical social workers in a range of settings and may also prove effective for at-risk youth (Vankanegan et al., 2019). Clinical social workers are engaged in the continuum of care that exists in adventure therapy from residential, wilderness therapy programs to community-based AT interventions (Vankanegan et al., 2019).

Trauma-Informed Outdoor Interventions

Social work is premised on the belief in the dignity and worth of individuals and groups, and that resources should be provided to help people through adversity (Harms & Pierce, 2011). The intended goal then is that deficits are reduced, needs are met, locus of control increases, and

human potential is fostered (Harms & Pierce, 2011). The pursuit of social justice in service to humanity follows from this valuing of the individual, and it recognizes and requires addressing injustice as it occurs at all levels: micro, mezzo, and macro (Baines, 2017).

In the 1990s, the U.S. Centers for Disease Control (CDC) and the Department of Preventative Medicine in San Diego collaborated on a study of 17,000 adults and included a list of ten traumatic events they designated ACEs (Felitti V. J., 2002). Twenty-five percent of the 17,000 participants reported having experienced more than one ACE, and one in sixteen (or 6%) reported experiencing four or more ACEs (Eller and Hierck, 2021). Prevalence rates of mental health disorders in children and adolescents have increased two to threefold from the 1990s to 2016, and include as environmental factors parents' substance use, poor diet, and obesity, and with known epigenetic and intergenerational effects (Monaco, 2021; Eller and Hierck, 2021).

Canada's children and youth display remarkably low levels of activity, despite a uniquely favorable landscape for physical activity, as well as the robust availability of facilities and programs, and equally supportive social policies (Gabrielsen & Harper, 2018). Linked to this increase in urbanization is technification, that is, the use of social media, smart phones, interactive devices, music, and TV (Gabrielsen & Harper, 2018). Significant increases in depression, anxiety, behavioural and mood disorders, subthreshold levels of mental health disorders, as well as the underreporting of same, continue to be present as risk factors in young people (Gabrielsen & Harper, 2018). Climate change is impacting young people's wellness (Thompson, 2021). One large scale study surveyed 10,000 young people in ten countries between 16 and 25 years of age, and found that, directly associated with climate change, youth are experiencing worry, fear, indifference, anxiety, sadness, anger and powerlessness (Thompson, 2021).

Children and youth routinely come to school poorly nourished, exhibiting anxiety, depression, ADHD, ADD, and expressing the effects of their own trauma histories (Monaco, 2021). Feelings of isolation and restrictions on access to mental health and wellness support exacerbate existing health problems and contribute to the development of new ones, especially among marginalized youth and children (Monaco, 2021). The United Nations Educational, Scientific and Cultural Organization (UNESCO) documents impacts of the Covid-19 pandemic, including child and youth education and employment, psychosocial health sexual and reproductive health, child abuse, gender-based violence, and even child marriage (UNESCO, 2021). In Canada, the Covid-19 global pandemic exacerbated social isolation, school closures, family stress, fears of contracting Covid-19, increased risk of exposure to abuse, and systemic racism adversely impacting student wellness and, inevitably, learning outcomes (Mental Health Commission of Canada, 2021). As noted above, the combined effects of urbanization, technification, climate change, Covid-19, as well as poor diet, parental neglect, and abuse overwhelm the capacity of children and youth to adapt and cope, let alone to thrive in their worlds (Eller and Hierck, 2021).

Briere & Scott (2014) define an event as “traumatic if it is extremely upsetting, at least temporarily overwhelms the individual’s internal resources, and produces lasting psychological symptoms” (p. 10). The authors identify several examples that may include child abuse, family disruption, emigration, motor vehicle accidents, witnessing traumatic events, medical emergencies, natural disasters, violence, rape, assault, and more. Risk factors include genetic predisposition and the role of epigenetics. These can be hidden contributors to the effects of trauma, especially in cases where one’s ancestors have been impacted. Trauma’s effects can include generalized anxiety, depression, physical or somatic symptoms, cognitive dysfunction, as

well as acute stress disorder (ASD) and post traumatic stress disorder (PTSD). Trauma can lead to psychosis and substance use disorders.

Accumulated trauma has cumulative effects. Perry (2004) notes that children can reach their potential most effectively when they have predictable, dependable, stimulating, and enhanced interactions in a milieu of nurturing and attentive relationships. In children, early exposure to trauma (for example, neglect, divorce, abuse) increases the likelihood of future trauma. When exposed to any kind of event interpreted as threatening, the young brain responds in ways wired for survival. Autonomic (involuntary) responses are rooted in the primitive brain (including the brain stem, limbic region, and the amygdala) and may include fight, flight (both reflecting hyperarousal), freeze and faint (dissociative) responses, often occurring in association within the same triggering event(s) (Perry, 2004). Perry (n.d.) explains that outward behaviours associated with these responses may include defiance and combative behavior and are associated with increased heart rate, anxiety, hypervigilance, and panic. The task of trauma therapy is to help children develop their sense of skill mastery and self-awareness around themselves and their histories, to attend in the moment to what is happening and to respond mindfully to current stressors rather than to recreate past trauma physiologically, behaviorally, and emotionally (Van der Kolk, 2003).

There continues to be a gap in both the practice and study of preventative approaches that mitigate for trauma (Harpe, & Dobud, Ed., 2021). While research involving outdoor therapies spans decades, approaches that serve marginalized youth are only beginning to be prescriptively trauma-informed. Johnson et al. (2020) state that 45% of WT participants reported having recently experienced a traumatic event. This does not address historical trauma. Emerging knowledge of adverse childhood experiences (ACEs) highlights to the practitioner potential

opportunities to implement TIP. Advances in neuroscience add an additional therapeutic layer that, in a trauma-informed approach, can empower the youth to access her own agency and strengths, and develop skills mastery to take charge of her long-term success (Perry, 2004).

Johnson et al. (2020) speak to TIP outside the classroom in their exploration of trauma-informed wilderness therapy. Their groundbreaking study with adolescent populations, spanning ten years and engaging more than eight hundred adolescents, including caregivers, using several measures as well as one-year follow-up, found that trauma-informed WT is a promising integrative intervention for that may improve the psychophysiological, psychological and family, functioning of youth (Johnson et al., 2020). Trauma-informed WT employs a relationally immersive model, grounded in biopsychosocial theory and research on attachment, neuroscience, and trauma (Johnson et al., 2020). Fernee, et al. (2017) describe a typical sequence of treatment for OBH clinical procedures as beginning with an initial assessment, which will include a diagnostic assessment, formation of personalized treatment plan including well defined objectives. The theoretical foundation of the WT therapeutic model is upheld, in which client centred self-determined constructs inform the individual foci within the group treatment program (Fernee et al., 2017) This can then include the goals of healing, change, development, and growth, and will always include therapeutic components (Harper et al., 2021).

Trauma-informed wilderness therapy includes the social dimension of outdoor therapy's biopsychosocial model, and focuses on developing strong therapeutic relationships between clients, peers, and staff (Johnson et al., 2020). It then seeks to harness these strong relationships in order to facilitate healing in clients' responses to stress across psychological, physiological, and relational domains. Their study recognized the dual components in WT of traditional psychotherapy techniques, for example, group and individual therapy, in an outdoor setting, as

well as outdoor adventurous and teambuilding activities that are designed to facilitate personal and social growth (Johnson et al., 2020).

Critical Perspectives

The lack of regulation led to problematic outdoor intervention approaches in the early 2000s (Norton et al., 2014). An absence of legislative oversight coupled with the popularity of boot camp approaches to wellness led to the emergence of boot camp-style wilderness therapy programs (Norton et al., 2014). In 2007, the General Accounting Office of the United States Congress issued its report, *Concerns Regarding Abuse and Death in Certain Programs for Troubled Youth* (Kutz & O'Connell, 2007). The report noted the relative autonomy of the programs, the lack of transparency and oversight, and the absence of a singular overseeing body (Norton et al., 2014). To develop oversight and best practices, the authors identify the Outdoor Behavioral Healthcare Industry Council (OBHIC), the AEE's Accreditation Program, and other initiatives to encourage accreditation and create standards of practice (Norton, 2014). Since this time, risk management research has shown that service users are actually safer while participating in OBH interventions than they are at home (Norton, 2014).

Mitten (2021), in Harper & Dobud (2021), offers a critical perspective on outdoor therapies, challenging the use of language and terminology including comfort zone, to challenge by choice, to best practices (Harper & Dobud, Ed. 2021). Mitten, who serves as chair of the Sustainability Education and Adventure Education graduate programs at Prescott College, Arizona, is a self-described feminist, ecofeminist, and scholar-practitioner who is also passionate about social justice. She suggests that the familiar term comfort zone may carry a presumption of privilege that veterans experiencing PTSD, for example, or street entrenched youth living in a constant state of hypervigilance may find offensive (Harper & Dobud, Eds. 2021). Challenge by

choice, a cornerstone of AT, intends to protect consent and to support motivation (Harper & Dobud, Eds. 2021).

However, Mitten argues that challenge by choice runs the risk of precluding authentic volition by the participant, introducing a narrow, forced choice paradigm, and denying participants a genuinely strength-based context for self-determination (Harper & Dobud, 2021). While the term best practices is typically used in good faith as the gold standard for the highest quality programming, it can protect status quo power and privilege, stifle creativity, and squelch innovation. Mitten argues that there is an implicit cultural bias inherent in best practices that assumes a person can arrive in linear fashion at a best. It can then protect an implicit cultural hegemony (Harper & Dobud, 2021).

The paternal narrative implicit within outdoor therapies is open to challenge (Harper & Dobud, 2021). The unspoken and paternalistic narrative might be replaced with an explicit, ecological lens, in which the orthodox and exclusively male lineage in the annals of experiential education, necessarily including many outdoor therapies (Plato, Aristotle, Socrates, Dewey, and Hahn) is restricted to men (Harper & Dobud, 2021). Mitten argues that it is time to replace the paternalistic metaphor, which reinforces a gender binary and heterosexualization (Mitten, 2013) which implies a biological determinism within outdoor education. Mitten argues instead for an ecosystems narrative that restores the numerous and significant contributions by women to the historical narrative and to outdoor and experiential education (Harper & Dobud, 2021). Doing so can also be supportive of the de-colonization of outdoor therapies and better acknowledge, for example, the land-based approaches of Indigenous peoples. Mitten has brought a valuable perspective in challenging assumptions and expanding the scope and dialogue of therapeutic practice (Harper & Dobud, 2021).

One potential limitation of these nature connection theories is that they are anthropocentric (Breymer et al. 2020; Harper & Dobud, 2021). That is, nature is viewed as an other in its own right, a resource, something to be accessed, used, and potentially even exploited in a reductionistic way, as if it is a medication for human use. Discussions around dosing in Harper et al. (2019) for example, may illustrate such an anthropocentric, resource-based view of nature.

Limitations and Gaps

Limitations and gaps in the literature are many. Challenges identifying specific mechanisms of therapeutic change have been discussed above as a subject of research (see *Therapeutic Process in Outdoor Therapies*, p. 17). Coventry et al. (2021) specify a limitation of their meta-analysis as rooted in their inability to extract specific data linking therapeutic benefits to the type and quality of greenspace, as well as blue space (proximity to natural water features like rivers, lakes, and oceans) in their literature. DeMille et al. (2018) echo the lack of consensus around what are the specific mechanisms of therapeutic change within outdoor therapies. Harper et al. (2021) describe limitations in positivistic, western scientific ontologies that may be inherently incapable of capturing the therapeutic nuances of outdoor therapeutic interventions. Lacking a clear understanding of the models and interventions that are instrumental in effecting positive change makes it impossible to measure the strength and integrity of individual features of treatment (Norton et al., 2014). Indeed, an inability to clarify the therapeutic process and treatment models may lead to challenges in establishing WT as a viable treatment model, given the current emphasis on evidence-based practice (Coventry et al., 2021).

One limitation is the relative absence of longitudinal studies. Bettman et al. (2018) conducted follow-up only one month after participants completed their program. Combs et al.

(2016) extend their post-discharge study to six months, but only half of participants responded (Combs et al., 2016). Others cite a similar limitation in attrition rates in longitudinal data retrieval negatively impacting results (Johnson et al., 2020; Norton et al., 2014; Roberts et al., 2017; Vankanegan et al., 2019). Coventry et al. (2021) note that data from their meta-study measure outcomes at the end of the studied programs and do not consider long term benefits of outdoor interventions (see also Mutz & Müller, 2016). Fernee et al. (2017) concur and add that an additional limitation includes consideration of alternative treatment approaches that elicit similarly effective results. While advances have been made regarding the longevity of positive outcomes, as noted above, longitudinal studies have not extended beyond 18 months (Roberts, et al., 2017). DeMille et al. (2018) note a lack of a comparison or control group in treatment studies, as well as the absence of longitudinal follow up data on participants after they complete treatment. Combs et al. (2016) agree that one of these limitations is that outcomes are primarily measured only upon admission and at discharge.

Racial and ethnic lack of diversity are noted. Bettman et al. (2018) note the inherently limiting role self-selection has for their study as limited to Outward Bound veterans already engaged in the OB veterans' program. They further note that Caucasian Americans disproportionately participate in outdoor activities when compared to visible minorities, and that among youth and young adults, the disparity is even greater (Bettman et al., 2018; Russell & Gillis, 2017). A related limitation is that similar data for Canadian populations is absent in the reviewed literature. DeMille et al. (2018) note a gap in consideration of family structure. Others note a limitation of exclusively using English language studies in their reviews (Harper et al., 2021; Twohig-Bennett & Jones, 2018).

The frequent absence of a control group is another limitation. Bettman et al. (2018) acknowledge that improvements in mental health may be attributable to factors other than those within the outdoor intervention. It was not possible to isolate therapeutic mechanisms within outdoor therapies from other potential contributing interventions (Bettman et al., 2018). Several studies speak to the absence of a control group as well (Combs et al., 2016; DeMille et al., 2018; Vankanegan et al., 2019). Johnson et al. (2020) identify a limitation of lacking both a control group and an alternative treatment group against which to compare results.

The role individual differences plays emerges as a limitation. For example, Bettman et al., (2018) note that the subjects for their veterans' study were self-referred, already engaged in OB veterans' programs and took the additional step of self-selecting for the study. It does not consider veterans who were not previously engaged in outdoor therapies (Bettman, 2018). Fernee et al. (2017) note a similar limitation in that it is not known for which youth participants WT is not effective. They note a gap in knowledge in controlling for the effectiveness of WT for variables like sex, gender, culture, age, as well as context and country (Fernee et al., 2017; Norton et al., 2014). Harper et al. (2021) concur regarding limitations associated with self-referral and the potential for nature-oriented bias.

There are limitations associated with clients and their treatments. DeMille et al. (2018) studied two groups, including an OBH group and a treat-as-usual (TAU) group. One limitation of their study was an inability to account for differences in treatments accessed by each group, and detailed information connected to the treatments received by each group. Fernee et al. (2017) were unable to account for individual differences between their clients. Norton et al. (2014) echo this limitation in describing the lack of standardization and, with it, the high number of treatment approaches associated with outdoor therapies. Outdoor therapies have proven effective with

groups such as veterans, who may resist traditional forms of therapy. Just as age-appropriate play therapy may engage children better than talk therapy, it is unknown whether outdoor and especially adventure therapies engage youth more effectively than traditional approaches. There remains a gap in knowledge regarding who may benefit most from outdoor interventions.

Another limitation is small sample size. DeMille et al. (2018) acknowledge that a limitation of their study is that it relates to a specific program, one among many, and cannot generalize to other programs. Ferner et al. (2017) recognize limitations with their review of qualitative studies and the inherent limitations of same to generalize their findings. Vankanegan et al. (2019) similarly cite small sample size as a limitation.

A final imitation is the potential for stigma to influence outcomes. Bettman et al. (2018) observe that veterans who participated in their study had self-reported history of mental illness. The authors note that stigma itself may preclude the participation of some potential service users who are reluctant or unwilling to self-disclose (Bettman et al., 2018).

Areas for Additional Research

Chaudhury & Banerjee (2020) contend that Indian culture has long held the belief that there is an innate, interdependent relationship between humanity and the natural world. These ancient and intuitive perspectives anticipate Western models like Wilson's biophilia hypothesis, which suggests that it is an inborn quality of humans to focus on and to bond with nature, as well as ACT, which suggests that the natural world replaces cognitive fatigue with mental restoration, and PET, which holds that features in nature evoke interest, and a pleasant feeling of calm, allowing for psychophysiological stress recovery. Continued study to develop theoretical frameworks is likely to be ongoing. As truly cross-cultural and inclusive epistemologies continue

to be accessed, fresh and holistic perspectives will offer alternative views that promise new epistemological insights.

As noted by Harper & Dobud (2021), there remains a gap in knowledge, providing opportunity for the development and study of preventative approaches. Strengths-based and effective outdoor therapies continue to emerge as wellness interventions in Canada (Harper et al. 2018). Outdoor approaches can be geographically flexible, specific to their settings, can engage urban service users, as well as front country, that is, outdoor places that can be accessed easily by vehicle and are typically frequented by day users, and backcountry, and can be adapted to support the capacity of participants.

Another opportunity for future study is to explore whether outdoor therapies are effective across settings, urban to wilderness, and may be applicable in most if not all geographic and demographic settings. Further study is warranted to explore whether the WT treatment model of Fernee et al. (2017) might be adapted beyond the backcountry to urban and community-based settings. Harper, et al. (2018) identify four purposes for wild places and associated disequilibria/equilibria with student experiences including experiential and lived-body learning, metaphorical/spiritual/aesthetic inspiration, location as other, and place-based learning. It is unknown the extent to which these four purposes are transferrable outside of the wilderness setting to other nature-based settings. Further study is warranted to see if the wilderness therapy clinical model of Fernee et al. (2017) might be adapted beyond the backcountry to urban and community-based settings. There is a notable absence in the literature regarding approaches and research on trauma-informed, preventative outdoor therapeutic models (Harper & Dobud, Ed. 2021).

Conclusions

Nature based therapeutic interventions are effective in producing desired positive outcomes through prescribed means (Harper et al., 2021). Still, traditional evidence-based approaches have not yet determined the therapeutic mechanisms that yield positive outcomes (Coventry et. al., 2021; Harper et al., 2021; Norton et al., 2014). Research on the impact of WT has reported positive user outcomes on at least three levels, including when WT outcomes are measured by self-report or caregiver report, when WT effectiveness is compared to that of traditional mental health or alternate residential treatment, and regardless of whether WT participants are voluntarily or involuntarily transported and admitted to WT (Coventry et al., 2021; Johnson et al., 2020; Twohig-Bennett & Jones, 2018). Regardless of the assessment tools used, outcomes of OBH interventions have been consistently shown to be positive.

In their umbrella review, Harper et al. (2021) were unable to identify mechanisms for therapeutic change across fourteen selected papers. The authors concede that yet more study and a still more rigorous approach may yield the desired results (Harper et al., 2021), though they also suggest an alternative ontology, a more holistic and integrated approach than traditional western analytical methodologies allow (Harper et al., 2021). Noting the gap in knowledge regarding the therapeutic mechanisms within outdoor therapies, and the absence of a linear path to identifying therapeutic mechanisms, as well as challenges controlling for variables, Fernee et al. (2017) propose a bio-psychosocially derived model that includes the wilderness, the physical self, and the social self.

Implications for Practice

Considering TIP and AOP approaches to outdoor therapies, both approaches inform interventions at micro, mezzo, and macro levels. As outdoor therapies function by definition at the micro, front line level, all initiatives at the macro and mezzo levels must focus on the

delivery of nature-based interventions to children and youth. Alternatively and at the mezzo level, community-based outdoor therapies may be funded through local agencies, and national or regional NGOs operating regionally. Macro level policy change can make available to lower income and other marginalized populations the benefits of outdoor therapies through law, policy, and funding change (i.e., public school systems and urban design). Social workers funded through Canadian public schools might be empowered to support the wellness of their students. In addition, macro level policy informing urban design can benefit service users located in more densely populated areas. In addition to micro level front-line outdoor therapeutic intervention, anti-oppressive practice calls the social worker to advocacy and political action at the mezzo and macro levels.

Anti-oppressive Practice in Outdoor Therapies

Anti-oppressive practice (AOP) is a social justice advocacy orientation that is self-consciously political and pursues social justice through the transformation of oppressive systems at micro, mezzo, and macro levels, from grassroots front line social work with individuals to municipal agencies, and extending to law and policy, in order to address systemic, structural injustice (Baines, 2017). Most outdoor therapy programs are situated in North America, Europe, and Australia. AOP speaks to socioeconomic inequities, Eurocentric cultural bias, and privilege-related issues of access (Baines, 2017). This review identifies theoretical and practical foundations of outdoor therapies that, through an anti-oppressive lens, may be applied in urban and community-based settings, as well as the wilderness.

Anti-oppressive practice as applied to outdoor therapies includes advocating for structural change to offer nature-based therapeutic services equitably to all groups, opening policy and structural avenues to serve those who may be marginalized. These include lower socioeconomic

groups, whose economic and life circumstances reflect proportionately greater oppression as well as trauma than its more privileged service users (Johnstone & Boyle, 2018). It also includes those whose physical abilities are limited. The US-based Outdoor Behavioural Healthcare Council speaks to AOP directly, offering a publicly available statement, signed by its officers, on diversity and inclusion (OBH Council, n.d.). In support of Black, Indigenous, and People of Colour (BIPOC) communities, the Council went on to pledge that it will continue to engage in ongoing critical self-reflection; to create fluid inclusion and diversity goals within the Council's strategic plans; to continue informing the OBH Centre by offering data; and to open its programs to external review; to supporting its membership to develop safe, equitable, and inclusive workplaces and client care standards of practice; and to support and encourage shared partnerships that will ensure inclusive access and equity in the outdoor therapies.

As long as outdoor programs have been in existence, approaches have been offered for lower income populations and the disadvantaged. Still, outdoor therapies historically have favored users of means who are able to fund their experiences privately (Vankanegan, 2019). There is a historical trend within outdoor therapies for private pay services, which necessarily privileges those from higher socioeconomic groups (Vankanegan, 2019). While those so engaged have often sought to create charitable opportunities among lower socioeconomic groups, such programs are often ad hoc, community-based non-profits whose funding and services are more limited in scope. Even the study deemed cross-cultural by Harper et al. (2018) was confined to countries of European origin (Norway, Canada, and Australia). AOP seeks to extend equity to the most marginalized youths, including the great majority of youths who live in urban centres.

Reconciliation with Indigenous Peoples

The task of reconciliation with Indigenous peoples is a sobering gift when extended to those who have settled in North America from around the world (Truth and Reconciliation Commission of Canada, 2015). Indigenous peoples, in Canada and around the world, are deeply rooted in their lands and have been for thousands of years (Harper & Dobud, 2021). Land-based approaches to wellness, rooted in local Indigenous worldviews, may be an opportunity and means for progress around reconciliation, while informing approaches to wellness with new ontologies (Harper et al., 2017). There is no single, monolithic Indigenous North American perspective, and Indigenous worldviews vary by region and locality. Rather, local partnerships for Indigenous land-based approaches show opportunity for reconciliation and approaches to wellness that are contextualized, and engaged with its people (Harper & Dobud, 2021). Articles 62-65 of the Calls to Action of the Truth and Reconciliation Commission call upon educational institutions to provide funding, policy, and curriculum opportunities for partnerships with local Indigenous nations; these are growing as trust and communication build (Truth and Reconciliation Commission of Canada, 2015). There is a potentially powerful opportunity in trauma-informed outdoor programs to build bridges of reconciliation with willing Indigenous hosts in local areas.

Implications for Policy

Adventure within urban and community-based settings.

Russell & Gillis (2017) cite Gass et al. (2012) to define AT as “the prescriptive use of adventure experiences provided by mental health professionals, often conducted in natural settings, that kinesthetically engage clients on cognitive, affective, and behavioral levels” (p. 1). Noting the need for treatment options that can meet the requirements of youth who have families unable to afford WT, Vankanegan et al. (2019) have shown that community-based, mezzo level

implantation of AT can make the benefits of adventure therapy available to members of lower socio-economic groups who might otherwise be unable to access them. They argue that AT serves a preventative role, in that treatment approaches that can be accessed prior to youth requiring costly out-of-home treatments may provide an early intervention plan for youth struggling with mental health issues (Vankanegan et al., 2019). Recording positive outcomes in a community-based adventure therapy program in a small mid-western US city, they found that AT may be an appropriate approach even for resistant youths who have attended treatment against their will or who are not ready to change. Thus, motivational interviewing may be an appropriate tool that is accessible for engaging less motivated youths (Vankanegan et al., 2019). As AT programs are inherently flexible and can be adapted to local contexts, they are well suited to community-based interventions.

Adventure is in the eye of the beholder. AT need not require extreme sports and can occur in urban and community-based settings (Vankanegan et al., 2019). AT may include ropes courses, as well as thoughtfully selected get acquainted games, safe touch games, problem-solving and teambuilding initiatives, high ropes, and challenge course activities, as well as hiking, canoeing, and extended backcountry travel (Vankanegan et al., 2019). AT is especially well suited to anti-oppressive applications. It can occur in settings ranging from urban to wilderness. Russell & Gillis (2017) confirm that AT operates easily from front country (e.g., teambuilding initiatives, challenge courses) to backcountry wilderness environments, and from shorter outpatient day programs that are more an adjunct to traditional treatment models, to longer, residential programs that offer canoeing and hiking, multi-day trips in the backcountry, and challenge course elements (Vankanegan et al., 2019).

Vankanegan et al. (2019) note that AT in experiential education intends activities to act as full body engagement metaphors of client and group treatment goals, so that clients are actively engaged in the therapeutic trajectory, eliciting motivation, providing opportunities for appropriate natural consequences, and ensuring clients have time for reflection and the metaphor of transferring learning. With its strength-based focus, AT groups allow participants to recognize their own internal and external assets as well as those of other group members and apply these to their immediate experience, and so to strengthen and practice social skills such as empathy, self-efficacy, and cooperation (Gass et al., 2012; Vankanegan et al., 2019). By practicing these skills in real time with a trained social worker present, group members are able to reflect on how these skills transfer to their own lives and relationships outside of the therapy group. It creates an atmosphere in which participants rely heavily on strong relationships built between peer members and group facilitators allowing insight into intra- and interpersonal issues (Gass et al., 2012).

Trauma-Informed with Equitable Access

Advocating for trauma-informed outdoor programs through Canadian public schools can transform education and change lives. Canadian public school systems provide immediate access to child and youth populations, across socioeconomic strata, and are actively engaged in trauma informed classrooms, practice, and learning. American public schools routinely employ social workers (National Association of Social Workers, 2010). A two-pronged approach to trauma-informed outdoor therapies within Canadian public schools might include pilot programs at the local level, with ongoing advocacy for provincial and national support through policy change.

With clearly articulated therapeutic intent, equitable funding, and the methodology required to engage youth in trauma-informed, skill based outdoor experiences will support

students to mitigate existing trauma and to equip them with preventative tools to address challenges moving forward. A comprehensive, K-12 plan to develop trauma-informed outdoor programs at the local school level can mitigate trauma in children and youth, equip students with life skills for managing trauma as it arises, empower the young with outdoor skills, and build fitness and wellness. Directly funding public schools for trauma-informed outdoor therapeutic programming can have a transformational effect on coming generations.

Expeditionary learning is an approach that provides mezzo-level, developmentally appropriate, and inter-curricular outdoor experiences throughout the school year. In Massachusetts, Thompson Island Outward Bound's educational program serving Boston public middle school students, combines social-emotional learning, field science, and outdoor adventurous activities, all the while filled with Outward Bound's iconic approach to promoting leadership, compassion, and service (TIOBC, n.d.). Funded by grants and gifts, private events, and fee-for-service offerings, their programs are offered free of charge to families (TIOBC, n.d.).

The expedition learning school model supports students through a progressive "sequence of engaging, relevant experiences that promote skill mastery and incorporate reflection. This focus on experiential education allows students to learn from struggles and failures, as well as successes" (TIOBC, Learning through Experience, para. 1). Expeditionary learning can readily accommodate trauma-informed practice with existing nature-based expeditionary learning curricula. Expeditionary learning is a mezzo level approach that can engage public schools through NGOs.

Web based learning can supplement existing programs for local, grassroots initiatives. Learning through Landscapes is an education-oriented web service based in the United Kingdom. Learning through Landscapes offers free of charge outdoor learning ideas and outdoor

lesson plans designed for grade school settings, that connect students with outdoor education and forest-based curricula. Natural objects that are nearby become complementary features in learning experiences for math, science, geocaching, biology, bushcraft, creative expression, and more.

Policy and Planning: Urban Greenspaces

Practitioners are recognizing the role urban design has in creating new greenspaces to support equitable access to nature for urban populations (Twohig-Bennett & Jones, 2018). Harper et al. (2021) note the increasing reference to engaging with nature for health purposes in the public health arena. Niche construction, form of life, and affordances speak to features in more populated areas that can contribute to wellness for city dwellers. Twohig-Bennett & Jones (2018) express the hope that their findings will encourage policymakers and practitioners to give appropriate attention to creating, maintaining, and improving existing accessible greenspaces in urban areas, as well as to develop strategies and interventions to facilitate access by those who are marginalized. Noting the multiplicity of health improvements associated with greenspace, Twohig-Bennett & Jones (2018) recommend that the creation, maintenance, and renewal of accessible greenspace could become part of a multi-pronged strategy to support an extensive array of health outcomes.

Risk factors impacting the health and wellbeing of children, youth, and adults continue to grow. Understanding around these risk factors is rising as well. Knowledge of the impacts of trauma, historical and intergenerational trauma, urbanization, technification, climate change, and now the Covid-19 pandemic have taken a toll on young people. Responding to these impacts, protective factors associated with the outdoors offer multiple and holistic points of access for wellness, including physical engagement with nature, play and risk, mastery, and social bonding

and belonging. While outcomes studies demonstrate the effectiveness of these outdoor approaches, trauma-informed, preventative, and anti-oppressive approaches are largely unexplored dimensions of outdoor, holistic care. As understanding of outdoor interventions continues to grow, and these strategies to build resilience are extended to emerging generations of young people, those inheriting these challenges may indeed rise to meet them.

Implications for Research

Outdoor therapies offer wellness interventions that shift emphasis away from positivistic, biomedical models toward client-centred biopsychosocial models. Outdoor therapies can be context-specific. They are strengths-based, build coping skills, and have been shown to be effective in building wellbeing and resilience in their users. Challenges identifying therapeutic mechanisms within OBH may reflect deficiencies in western ontologies and epistemologies, and instead call for a new way of looking at therapeutic change, new ways of knowing that are holistic, and draw knowledge from alternative sources. Ongoing research can build the knowledge base to explore mechanisms within outdoor therapies.

AOP and Transferability to Urban Settings

Urban outdoor therapies have inherent limitations, but the opportunities and the demand for human connection with the natural world demand that applications be explored, both for human stewardship of the environment and for creating health-giving opportunities among the vast majority of Canadians, who are city dwellers. Attention around affordances, that is, the creation of natural spaces within urban locales that are an alternative to heavily cultivated parks, complement existing natural experiences (Harper et. al., 2019). Natural environment affordances are more healthful than manicured urban settings. Nature-based interventions (NBIs) will include

solitary (the physical self) as well as group-based activities (the social self) that are undertaken in outdoor green and blue spaces (Brymer et. al., 2020).

Brymer et al. (2020) use the term greenspace to refer to accessible public areas with natural vegetation, such as grass, plants, and trees. Interventions may include gardening, green exercise and nature-based therapy (Coventry et al., 2020); social and therapeutic horticultural activities such as gardening and food growing to support wellbeing; care farming that involves the therapeutic use of agricultural landscape and farming practices; environmental conservation involving activities designed for conservation and management of natural places for health and wellbeing; green and blue exercise that involves physical activity, including walking and moderate to vigorous activity such as jogging; and nature-based therapies that include the therapeutic use of natural spaces to undertake stress relieving and relaxing activities, such as forest bathing, mindfulness, and wilderness therapy. All of this can occur outside of a wilderness setting and in more populated, and front country locales.

Micro level participation in outdoor therapies benefits service users, yet the need for more access remains. Trauma-informed as well as anti-oppressive approaches to social work practice speak to this need, as well as opportunities to build mezzo and macro level advocacy that may shape public education funding to create avenues of access so marginalized children and youth can access outdoor and adventurous therapeutic interventions. Anti-oppressive planning of urban green spaces is one avenue to create access for service users in more densely populated centres. Community non-profits and NGO agencies provide mezzo level services to local youth. These approaches can support children and youth affected most by ACEs, as well as marginalized others not readily able to access wilderness locations. As our planet continues to warm, environmental approaches that protect and nourish the natural world inform professional

practice and challenge conquest or dominance models of the natural world. Outdoor therapies can nourish those who access them.

While outdoor interventions have proved effective, significant gaps remain in researchers' knowledge, including therapeutic mechanisms within outdoor therapies, preventive approaches, and transferability to urban settings. Outdoor therapies have historically favored the privileged, and Vankanegan et al. (2017) have argued that social work practice readily engages with outdoor therapies. Still, anti-oppressive approaches have barely been explored. Theoretical frameworks and practice models for OBH point to a holistic, integrated approach, with an opportunity to construct approaches to nature therapy that are location based, transferrable wilderness to urban settings, trauma-informed, and anti-oppressive, all to promote equity access to outdoor therapy, to build an emerging generation of resilient young people.

References

- Ackerman, C.E. (2021). *What is Kaplan's Attention Restoration Theory (ART)?* Positive Psychology. <https://tools.positivepsychology.com/17-exercises>
- Association for Experiential Education. (n.d.). *What is Experiential Education?* <https://www.aee.org/what-is-experiential-education>
- Baines, D. (Ed.). (2017). *Doing anti-oppressive practice* (6th ed.). Fernwood Publishing.
- Bettmann, J.E., Scheinfeld, D., Prince, K., Garland, E.L., & Ovrom, K. V. (2018). Changes in psychiatric symptoms and psychological processes among veterans participating in a therapeutic adventure program. *Psychological Services*. *Advanced online publication*. <http://dx.doi.org/10.1037/ser0000213>
- Borrell-Carrió, F., Suchman, A. L., & Epstein, R. M. (2004). The biopsychosocial model 25 years later: principles, practice, and scientific inquiry. *Annals of family medicine*, 2(6), 576–582. <https://doi.org/10.1370/afm.245>
- Briere, J. N., & Scott, C. (2014). *Principles of trauma therapy: A guide to symptoms, evaluation, and treatment* (DSM-5 update). Sage Publications.
- Brymer, E., Araújo, D., Davids, K., & Pepping, G.J.. (2020). Conceptualizing the Human Health Outcomes of Acting in Natural Environments: An Ecological Perspective. *Frontiers in Psychology*, 11. <https://doi-org.proxy.ufv.ca:2443/10.3389/fpsyg.2020.01362>
- Camps, M.A. (2016). *Health Benefits Of Nature*. All You Need is Biology. <https://allyouneedisbiology.wordpress.com/tag/psycho-evolutionary-theory/>
- Chaudhury, P. & Banerjee, D. (2020). “Recovering With Nature”: A Review of Ecotherapy and Implications for the COVID-19 Pandemic. *Frontiers in Public Health*. <https://www.frontiersin.org/articles/10.3389/fpubh.2020.604440/full>

- Combs, K., Hoag, M., Javorski, S., & Roberts, S. (2016). Adolescent Self-Assessment of an Outdoor Behavioral Health Program: Longitudinal Outcomes and Trajectories of Change. *Journal of Child & Family Studies*, 25(11), 3322–3330.
<https://doi.org/10.1007/s10826-016-0497-3>
- Corcoran, J. (2005). *Building strengths and skills: A collaborative approach to working with clients*. Oxford University.
- Coventry, P. A., Brown, J. V. E., Pervin, J., Brabyn, S., Pateman, R., Breedvelt, J., Gilbody, S., Stancliffe, R., McEachan, R., White, P. C. I. (December 2021). Nature-based outdoor activities for mental and physical health: Systematic review and meta-analysis. *Elsevier*, 16, 100934.
<https://www.sciencedirect.com/science/article/pii/S2352827321002093>
- DeMille, S., Tucker, A. R., Gass, M. A., Javorski, S., Vankanegan, C., Talbot, B., & Karoff, M. (2018). The effectiveness of outdoor behavioral healthcare with struggling adolescents: A comparison group study a contribution for the special issue: Social innovation in child and youth services. *Children and Youth Services Review*, 88, 241–248. <https://doi-org.proxy.ufv.ca:2443/10.1016/j.childyouth.2018.03.015>
- Dobud, W. W. (2017). Towards an evidence-informed adventure therapy. *Journal of Evidence-Informed Social Work*, 14(3), 172-182.
<https://www.tandfonline.com/doi/abs/10.1080/23761407.2017.1304310>
- Dobud, W. W., Cavanaugh, D. L., & Harper, N. J. (2020). Adventure Therapy and Routine Outcome Monitoring of Treatment: The Time Is Now. *Journal of Experiential Education*, 43(3), 262–276. <https://doi.org/10.1177/1053825920911958>

- Eller, J. F. & Hierck, T. (2021). *Trauma Sensitive Instruction: Creating A Safe And Predictable Classroom Environment*. Solution Tree Press.
- Engel, G. L. (1977). The need for a new medical model: A challenge for biomedicine. *Science*, 196 (4286): 129–36. doi:10.1126/science.847460. PMID 847460.
- Felitti V. J. (2002). The Relation Between Adverse Childhood Experiences and Adult Health: Turning Gold into Lead. *The Permanente Journal*, 6(1), 44–47.
- Ferneer, C. R., Gabrielsen, L. E., Andersen, A. J. W., & Mesel, T. (2017). Unpacking the Black Box of Wilderness Therapy: A Realist Synthesis. *Qualitative Health Research*, 21, 114-129.
- Gabrielsen, L. E. & Harper, N. J. (2018). The role of wilderness therapy for adolescents in the face of global trends of urbanization and technification. *International Journal of Adolescence and Youth*, 23(4), 409–421.
<https://doi.org/10.1080/02673843.2017.1406379>
- Gass, M., Priest, S. & Gass, M. A. (1997). The range of teaching styles in adventure programming. *The Journal of Adventure Education and Outdoor Leadership*, (4), 12-14.
- Gillis, H. L. (Lee), Jr., Kivlighan, D. M., Jr., & Russell, K. C. (2016). Between-client and within-client engagement and outcome in a residential wilderness treatment group: An actor partner interdependence analysis. *Psychotherapy*, 53(4), 413–423. <https://doi-org.proxy.ufv.ca:2443/10.1037/pst0000047.supp> (Supplemental)
- Harms, L. & Pierce, J. (2011). *Working with people* (Canadian ed.). Oxford University Press.
- Harper, N. J. & Dobud, W. W. (Eds.). (2021). *Outdoor therapies: an introduction to practices, possibilities and critical perspectives*. Routledge.

- Harper, N.J., Fernee, C.R., & Gabrielsen, L.E. (2021). Nature's Role in Outdoor Therapies: An Umbrella Review. *Int. J. Environ. Res. Public Health*, 18, 5117.
<https://doi.org/10.3390/ijerph18105117>
- Harper, N.J., Gabrielsen, L. E., & Carpenter, C. (2018). A cross-cultural exploration of 'wild' in wilderness therapy: Canada, Norway and Australia. *Journal of Adventure Education & Outdoor Learning*, 18(2), 148-164. <https://doi.org/10.1080/14729679.2017.1384743>
- Harper, N. J. Mott, A. J. & Obee, P. (2019). Client perspectives on Wilderness Therapy as a component of adolescent residential treatment for problematic substance use and mental health issues. *Children & Youth Services Review*, 105, N.PAG. <https://doi-org.proxy.ufv.ca:2443/10.1016/j.childyouth.2019.104450>
- Harper, N., Rose, K., & Segal, D. (2019). *Nature-based therapy: a practitioner's guide to working outdoors*. New Society Publishers.
- Johnson, E. G., Davis, E. B., Johnson, J., Pressley, J. D., Sawyer, S., & Spinazzola, J. (2020). The effectiveness of trauma-informed wilderness therapy with adolescents: A pilot study. *Psychological Trauma: Theory, Research, Practice, and Policy*, 12(8), 878–887.
<https://doi-org.proxy.ufv.ca:2443/10.1037/tra0000595.supp> (Supplemental)
- Johnstone, L., & Boyle, M., with Cromby, J., Dillon, J., Harper, D., Kinderman, P., Longden, E., Pilgrim, D., & Read, J. (2018). *The Power Threat Meaning Framework: Towards the identification of patterns in emotional distress, unusual experiences and troubled or troubling behaviour, as an alternative to functional psychiatric diagnosis*. British Psychological Society.
- Kellert S. R., & Wilson E. O., (2013). *The biophilia hypothesis*. Shearwater.

- Kutz, J. D., & O'Connell, A. (2007, October 10). *Concerns regarding abuse and death in certain programs for troubled youth* (# GAO-08-146T; Report and Testimony to the Committee on Education and Labor, House of Representatives). Washington, DC: U.S. Government Accounting Office.
- Mitten, D. (2013). Book Review: Sourcebook of Experiential Education: Key thinkers and their contributions. *Journal of Experiential Education*, 36(1), 80-81.
- Monaco, A. P. (2021). An epigenetic, transgenerational model of increased mental health disorders in children, adolescents and young adults. *European Journal of Human Genetics : EJHG*, 29(3), 387–395. <https://doi.org/10.1038/s41431-020-00726-4>
- Mutz, M., & Müller, J. (2016). Mental health benefits of outdoor adventures: Results from two pilot studies. *Journal of Adolescence*, 49, 105–114. <https://doi-org.proxy.ufv.ca:2443/10.1016/j.adolescence.2016.03.009>
- National Association of Social Workers. (2010). *Social Workers in Schools (Kindergarten through 12th Grade) occupational profile*. <https://www.socialworkers.org/>
- Norton, C. (2010). Into the Wilderness – A Case Study: The Psychodynamics of Adolescent Depression and the Need for a Holistic Intervention. *Clinical Social Work Journal*, 38(2), 226–235. <https://doi-org.proxy.ufv.ca:2443/10.1007/s10615-009-0205-5>
- Norton, C. L., Tucker, A., Russell, K. C., Bettmann, J. E., Gass, M. A., Gillis, H. L. “Lee”, & Behrens, E. (2014). Adventure Therapy With Youth. *Journal of Experiential Education*, 37(1), 46–59. <https://doi-org.proxy.ufv.ca:2443/10.1177/1053825913518895>
- NCOBS, (n.d.). *Educational Approach*. North Carolina Outward Bound School. <https://www.ncobs.org/about/educational-approach/>

Outdoor Behavioural Healthcare Council. (n.d.). *Council's Diversity & Inclusion Statement*.
<https://obhcouncil.com/dei-statement/>

Outward Bound Canada. (n.d.). *Here's To Another 50 Years In Canada*.
<https://www.outwardbound.ca/about-us/obc50/>

Parry, S. J., & Allison, P. (2019). *Experiential learning and outdoor education. [electronic resource]: Traditions of practice and philosophical perspectives*. Routledge.

Perry, B. D. (n.d.). *Keep The Cool In School: Promoting Non-Violent Behavior in Children*.
Scholastic. <http://teacher.scholastic.com/professional/bruceperry/cool.htm>

Perry, B. (2004). *Maltreatment and the Developing Child: How Early Childhood Experience Shapes Child and Culture*. The Margaret McCain Lecture Series.
<https://www.childtrauma.org/brain-dev-neuroscience>

Piaget, J. (2001). *The psychology of intelligence*. Routledge.

Roberts, S. D., Stroud, D., Hoag, M. J., & Massey, K. E. (2017). Outdoor Behavioral Health
Care: A Longitudinal Assessment of Young Adult Outcomes. *Journal of Counseling
& Development*, 95(1), 45–55. <https://doi.org/10.1002/jcad.12116>

Rogers, C. R. (2002). *Client-centred therapy : Its current practices, implications and theory*.
Constable.

Russell, K., & Gillis, H. L. (Lee). (2017). The Adventure Therapy Experience Scale: The
Psychometric Properties of a Scale to Measure the Unique Factors Moderating an
Adventure Therapy Experience. *Journal of Experiential Education*, 40(2), 135–152.
<https://doi-org.proxy.ufv.ca:2443/10.1177/1053825917690541>

Stern, M. J., & Powell, R. B. (2020). Field Trips and the Experiential Learning Cycle. *Journal of
Interpretation Research*, 25(1), 46–50. <https://doi.org/10.1177/1092587220963530>

Thompson, T., (2021). *Young people's climate anxiety revealed in landmark survey*. Nature.

<https://www.nature.com/articles/d41586-021-02582-8>

Thompson Island Outward Bound Education Centre. (n.d.) *Changing Lives through Challenge*

and Discovery. <https://thompsonisland.org/>

Twohig-Bennett, C., & Jones, A. (2018). The health benefits of the great outdoors: A systematic review and meta-analysis of greenspace exposure and healthy outcomes. *Environmental Research*, (166) 628-637.

Truth and Reconciliation Commission of Canada. (2015). National Centre for Truth and

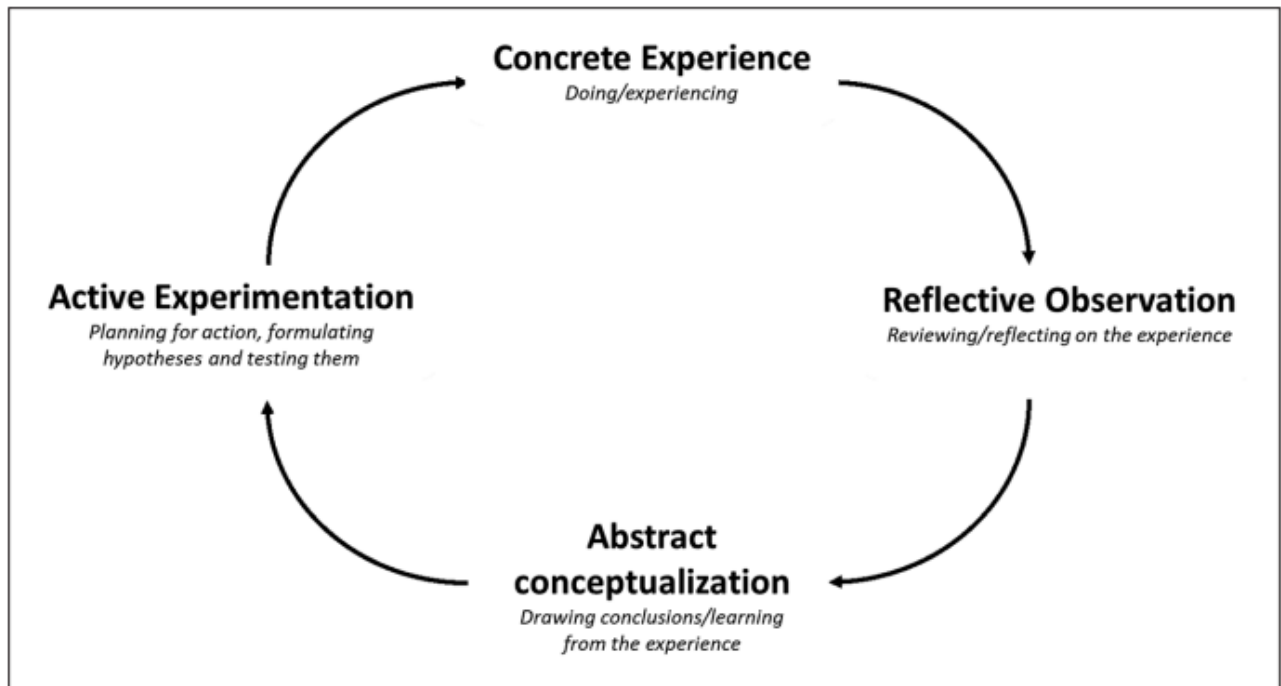
Reconciliation. <https://www.rcaanc-cirnac.gc.ca/eng/1450124405592/1529106060525>

Vankanegan, C., Tucker, A. R., McMillion, P., Gass M., & Spencer L. (2019) Adventure therapy

and its impact on the functioning of youth in a community setting, *Social Work with*

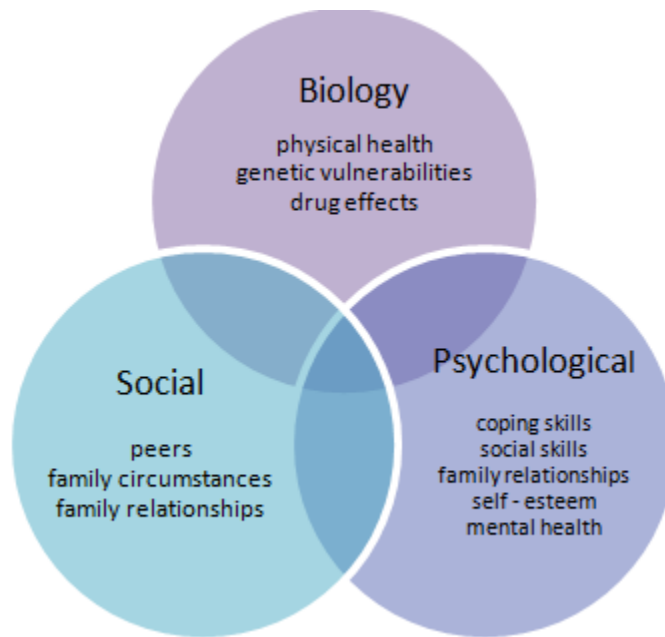
Groups, 42:2, 127-141, DOI: 10.1080/01609513.2018.1478761

Appendix A: Kolb's Experiential Learning Cycle



From *Field Trips and the Experiential Learning Cycle* (p. 47), by M. J. Stern, & R. B. Powell, (2020). *Journal of Interpretation Research*, 25(1).

Appendix B: The biopsychosocial model



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Appendix C: Elements and Outcomes

Author	Elements & Outcomes
Bettman, et al (2018)	Positive outcomes with veterans
Brymer et al (2020)	form of life, affordances, niche construction
Combs et al (2016)	CBT, choice therapy, family systems, mindfulness
Coventry et al (2021)	large and significant effects for anxiety, positive affect
DeMille et al (2018)	seven key components of the OBH approach
Dubud et al (2020)	Routine outcome monitoring (ROM), Therapist Effects
Ferneer (2017)	(a) the Wilderness, (b) the Physical Self, (c) the Social Self,
Harper & Dobud (2021)	place based, active bodily engagement, human-nature kinship
Harper et al (2021)	place based, active bodily engagement, human-nature kinship
Harper et al (2018)	land based ; pace and pedagogy; regaining equilibrium
Harper et al (2019)	1) the practitioner's relationship with nature; 2) nature as co-therapist; 3) full body engagement, play, and risk;
	4) restoration and regulation, and 5) bonding and belonging
Johnson et al (2020)	Trauma informed WT is promising & complementary
Mutz & Müller (2016)	mindfulness, well-being, skills, group, outlook and attitude
Norton et al (2014)	this was a state of knowledge paper
Roberts et al (2017)	outcomes shown effective
Russell & Gillis (2017)	This assessed the Adventure Therapy Experience Scale
T-B & Jones (2018)	create, maintain, and improve greenspace
VanKanegan et al (2019)	AOP, (1) engagement in action-centred therapy, (2) the use of an unfamiliar or novel environment or situation,
	(3) maintenance of a climate of change, (4) use of activities as continual assessment tools, (5) creation of a caring community, (6) a solution-focused approach, (7) a shift from clinician as expert to clinician as facilitator to allow for a flexible therapeutic relationship