Pathways

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Pathways

COEO

Formed in 1972, the Council of Outdoor Educators of Ontario (COEO) is a non-profit, volunteer-based organization that promotes safe, quality outdoor education experiences for people of all ages. We achieve this by publishing the *Pathways* journal, running an annual conference and regional workshops, maintaining a website, and working with kindred organizations as well as government agencies. Members of COEO receive a subscription to *Pathways*, as well as admittance to workshops, courses and conferences. A membership application form is included on the inside back cover of this issue of *Pathways*.

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Pathways

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Pathways is always looking for contributions. Please contact the Chair for submission guidelines.

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Features

Columns

Editor's Log

I would like to open this issue with a brief note through which to share my sincere personal gratitude, as well as pass along the many thanks and praise from *Pathways* readers near and far. More than a year ago now, Guest Editors Megan Tucker, Nina Bakan, and Aaron Lefler, embarked on the challenging task of assembling a two-part, theme issue of our journal that would explore encounters with the more than human as a moment of pedagogy (winter and spring issues, 2023). As a result of these editors' combined efforts and the thoughtful work of the many talented contributors, the *Pathways* email inbox experienced a significant uptick! For several months following the release of these issues, our email account received a constant flow of positive feedback that celebrated the theme and curated content of these two back-to-back issues. And so, I say thank you on behalf of myself and our readership and would also like to share how much the *Pathways* Editorial Board appreciates the creativity and initiative of these guest editors and their effort and commitment to see these special theme issues through to publication.

In addition to thanking the editors and the many authors who contributed to these two issues, I would also like to acknowledge the work of artist Marlisha Lewis. Mar explored the theme through her unique artwork, which created a special visual continuity across both issues. And while the similarity between the cover art presented on the two issues may have confused more than a few of us, "Didn't I already receive this issue?", when placed side by each with the winter issue depicting a left hand and resting moth beside the spring issue with the right hand and another moth, many saw these hands intimately connected with the more than human, and in immediate contrast to their own likely mothless hands hovering over a computer keyboard, or on a steering wheel, or rested in a lap while in front of a screen.

This issue of *Pathways* begins with an article by Kirsten Føns. Kirsten is an assistant professor and PhD student at the Institute of Learning, Ilisimatusarfik – University of Greenland. She spent the fall semester of 2022 as a visiting research student at Lakehead University in Thunder Bay, Ontario. In this article, Føns describes some of the research work she has undertaken as part of her PhD project, exploring how students in the Greenlandic Elementary School respond to Culturally Responsive Education Outside the Classroom (CREOtC). Next, Simon Priest asks the question, Are your outdoor learning participants under the influence? In answering his question, Priest provides practitioners with valuable Canadian data pertaining to use of various substances and the impact each may have on participants and staff. The author ends the article by sharing a series of helpful recommendations for practitioners.

Kyle Clarke
Editor

Sketch Pad –The art for this issue of *Pathways* was generously contributed by Kainat Ahmad. Drawing from a traditional fine arts background, Kainat's digital creations are firmly rooted in the principles of composition, colour theory, and proportion. Her artistic expression is deeply influenced by the vibrant hues and unconventional forms of 1970s retro design. Exploring themes of eclecticism and maximalism, Kainat's work presents a striking contrast to her own minimalist way of life. At present, Kainat works as a freelance illustrator, having collaborated with esteemed clients including Adobe, The Globe and Mail, Shoppers Drug Mart, and Avalanche. Instagram: @kainat.png Website: https://kainatahmad.com

President's View

We are busy planning *Opening Doors to the Outdoors* with a return to the shores of Lake Couchiching this fall! This conference, building on the momentum of an incredible Make Peace with Winter at Camp Kawartha, and with many of the same incredible conference co-conspirators, challenges outdoor education practitioners to ensure accessibility at all intersections of identity. We know outdoor spaces and education opportunities have barriers that prevent many people from accessing them and feeling safe and welcome—both participants in programs as well as educators. Barriers can be experienced through one's race, sexual orientation, gender expression, being differently abled, being neurodivergent, cultural practices and/or religious beliefs. We want the fall COEO conference to help recognize those working to break barriers, as well as those with lived experience and allies who can provide critical tools, training and opportunities for best practice. We invite not just a shift in our praxis, but also our practice of Outdoor Education, so we all can take real actions to ensure that historically underrepresented and underserved groups feel invited, welcomed, safe and supported within the OE community and in outdoor spaces. As our triad of incredible conference chairs, Val, Shanshan and Billie Jo identify: "It is hard to think of a location with fewer physical walls than an outdoor classroom. Relationships start with an invitation and then are built through continued care, mutual appreciation, and action. For this conference, we want to support each other in finding ways each of us can keep the doors in our lives open a little more. None of us would not be in this profession if we did not care about building community and relationships. Each of us work in settings where small but intentional actions can have a huge impact on mindset and outcomes. We invite you to think about the ways you work to include not just the fictional 'typical' learner in the outdoors, but the real people who call Ontario home."

As a setting for this essential work, we return in September to Camp Couchiching, which, in addition to offering camping opportunities for over 70 years, is the new home of the Outdoor Educational Leadership Centre (OELC). OELC has a legacy of student leadership since 1948 and is a true catalyst towards regenerative outdoor education through youth leadership. It is an auspicious location for building our community resources and resilience. Registration for the fall conference is open, and we could not be more thrilled with the roster of presenters and ideas for this fall's golden anniversary. We hope you will join us!

COEO recognizes that there are real barriers to accessing community and high-quality professional development, and one of them is financial. We are grateful to make joining us more accessible thanks to conscientiously maintaining a low-cost conference, and by providing a generous bursary fund, which has been built through many years of fundraising efforts and donations. Our bursary program is bolstered by member donations, silent auction proceeds, raffles and external awards. Are you an emergent or seasoned Outdoor Educator in need of a bursary to get to Camp Couchiching this September? We are committed to supporting those in need of a partially or fully subsidized conference fee. Please see our website for ways to apply.

See you in September!

Karen O'Krafka
President

Cultural Traditions, Hunting and Nature-Based Education in a Class for Children with Special Needs in a Greenland Elementary School: Culturally Responsive Education Outside the Classroom That Motivates

By Kirsten Føns

Introduction

Ivaaq says spontaneously that he would like the school to end at 1:30 p.m.[1] He thinks school is too short, he likes going to school. When the teacher asks what he likes about going to school, he answers "everything." (Observation notes).

This passage is from observation notes I took while observing a school day in a class for children with special needs at a Greenlandic elementary school. The teacher uses Culturally Responsive Education Outside the Classroom (CREOtC) as a pedagogic approach, which means she often works in an interdisciplinary way and includes Greenlandic nature and cultural traditions. Education Outside the Classroom (EOtC) is a pedagogy that involves teaching regularly takes place outside the classroom, connecting with the teaching in the classroom and corresponding with learning goals within the curriculum (Ejbye-Ernst et al., 2017; Jordet, 1998, 2010). CREOtC has many similarities with what is called Land-based Learning in North America (Lee et al., 2022).

In my interview with Ivaaq, he says that he thinks he has a good teacher. The interview continues:

Kirsten: *Why do you think she is a good teacher?*
Ivaaq: *For example, when we have lessons, it is something else. It's not just schoolbooks.*
Kirsten: *It's not just schoolbooks?*
Ivaaq: *To do something else.*
Kirsten: *You also do something else? Yes?*
Ivaaq: *When we do this: (Ivaaq points at photos of the class's many activities hanging on the wall in the classroom).*

The pictures show the students gathering plants in nature to dry them for tea and spices. There are also pictures of the students cleaning and sorting the plants, and a picture of the students practising first aid on each other in preparation for a hunting trip. Some of the dried plants are in a box on a shelf next to the pictures on the wall, and above the box is a dried skin of an Arctic hare they shot on a hunting trip. Under each of the pictures there is a short text written by the students that describes what is happening in the pictures.

When the class uses CREOtC pedagogy, it is typically thematic and based on the season. Ivaaq shows in his statements that this way of teaching motivates him. The purpose of this article is to investigate why and how it motivates, and whether it can inspire the development of a Greenlandic CREOtC pedagogy that is suitable for children with special needs, as well as in general, in the Greenlandic elementary school.

A Short Introduction to Greenland *(Kalaallit Nunaat)*

Greenland *(Kalaallit Nunaat)* is the world's largest island and is a self-governing part of the Danish kingdom. The Greenlandic-Danish modern relationship began in the year 1721, when the Norwegian Protestant priest Hans Egede, on behalf of the king of the Danish/Norwegian kingdom, arrived on the southwest coast of Greenland to convert the northerners from Catholicism to Protestantism. The Norsemen settled in an uninhabited Greenland in the year 985 but had disappeared by 1721. Instead,

Hans Egede began missionary work among the Inuit population, who immigrated to Greenland from the northeastern islands of present-day Canada in approximately year 1200, and from whom modern Greenlanders (Kalaallit Inuit) originate. Greenland was a Danish colony until 1953, when it became part of Denmark on the recommendation of both Greenlandic and Danish politicians, but without a referendum in Greenland. It gained home rule in 1979 and self-government in 2009, both after a referendum in Greenland. In the Self-Government Act, Greenland has the right to choose independence through a referendum in Greenland. Greenlanders are Danish citizens.

The vast majority of Greenlanders have Inuit or mixed Inuit and European origins (approximately 90% of the population), and Greenland's official language is Greenlandic *(Kalaallisut)* and is the mother tongue of the majority. Some Greenlanders have Danish as their mother tongue, and Danish is a second language, which is learned from the first grade. English is the third language.

Approximately 56,600 people live in Greenland, primarily in south and west Greenland where the sea does not freeze in winter. The country's capital Nuuk is located on the southern part of the west coast. It has a population of 19,600 people and is by far the largest city. All towns and villages are located on the coast and fjords, as the interior is uninhabitable with the northern hemisphere's largest ice sheet. There are no permanent residents in northeast Greenland, which is the world's largest national park. The distances are long and the terrain challenging, meaning that there are no roads or railways between towns and villages, so transport is by boat, plane, or helicopter, or, in the north and east in winter, sometimes by dog sled or snowmobile.

Since the early 1980s, Greenland has had responsibility for schools and education, and most teachers in Greenlandic primary schools are Greenlanders (Kalaallit Inuit). Teaching in the primary school takes place in Greenlandic or Danish, adapted to the local conditions, and the textbooks are in both languages. In higher education, the language is mostly Danish and sometimes English. Greenland has one university, Ilisimatusarfik (University of Greenland), located in Nuuk (www.uni.gl). It offers some education, of which the Teacher Training College is the largest, and where the author is employed. Approximately 40-50 teachers train each year, and it is a very small university compared to universities in Canada and in most of the world. It thus has a limited number of courses, so if Greenlanders, for example, want to study medicine or science, they must go abroad. They typically go to Denmark, where education is free for them.

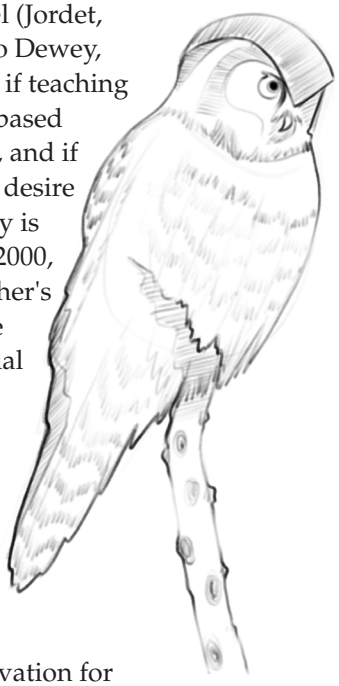
The level of education is low compared to other Nordic countries; 60% of young people between the ages of 18 and 25 have no education beyond primary school.

The Greenlandic political system is a representative democracy with Western standards, with a national parliament and five municipalities. Society is based on a Danish/Nordic welfare system with similar institutions, with free healthcare, free education, and financial support for the unemployed. Most Greenlanders are well functioning and lead good lives, but some face the same challenges as other post-colonized populations with families and individuals struggling with alcoholism, drug addiction, violence, child abuse, high suicide rates and no or low levels of education.

Apart from block grants from Denmark, fishing constitutes the largest source of income for the country. Most are employed in fishing or are self-employed small boat fishermen and hunters, or are employed in the public sector, the service sector, or the construction sector. Tourism is growing in Greenland and is something, along with the mining industries, the authorities are trying to develop.

EOtC From a Greenlandic Perspective

EOtC is a pedagogy in which teaching regularly takes place outside the classroom, in external learning environments and informal learning spaces; for example, in nature, in urban areas, or by visiting companies or museums. The learning goal for teaching outside the classroom is within the curriculum and is connected with the teaching in the classroom (Jordet, 1998, 2010). Jordet, who was among the first to develop, define and study EOtC, theoretically follows John Dewey's theory of a student-activating and investigative approach to learning on an intellectual level (Jordet, 2010). According to Dewey, children learn best if teaching is situated, action-based and inquiry-based, and if their curiosity and desire for physical activity is included (Dewey, 2000, 2013). It is the teacher's task to develop the student's intellectual competencies and link activities and experiences with theory and knowledge. In this interaction between "hands on-minds on", learning, and motivation for learning, occurs (Dewey, 2000, 2013).



EOtC is typically hands on, student-activating and place-based, and this form of teaching can promote students' physical activity, well-being, motivation and learning outcomes (Bølling et al., 2018, 2019; Fägerstam & Blom, 2013; Ladekjær et al., 2018; Otte et al., 2019). This also applies to children with special needs: Being in nature, the "hands-on" activities and other non-academic success criteria can motivate the students, especially when EOtC takes place in small groups and with clear guidance and scaffolding (Bærenholdt & Hald, 2020; Malberg Dyg & Wistoft, 2018).

Furthermore, research indicates that in societies which, like the Greenlandic, are based on an traditional Indigenous culture and are geographically isolated, this place-based, situated and hands-on teaching is suitable (Barnhardt, 2007; Borden & Wiseman, 2016; Boyer, 2006; Christensen, 2019; Sianturi et al., 2018). A quantitative study of mental health among children and young people in Greenland shows a positive correlation between mental health and participation in cultural activities or spending time in nature (Ottendahl et al., 2021). The study indicates that cultural activities and spending time in nature protect against social risk factors during childhood (Ottendahl et al., 2021). Activities that include the use of nature, such as hunting, fishing, berry picking and gathering herbs, are of great importance for identity and well-being among Indigenous people, not just in Greenland, but throughout the Arctic (Poppel, p. 56, 2015, 2017). This article examines what happens when cultural activities and nature are included in teaching.

Studies have shown that the Greenlandic elementary school is challenged in terms of learning and motivation, and that students report a lot of book-centered "reading-writing assignments", which they consider boring and demotivating (Demant-poort & Andersen, 2022; EVA, 2015). The purpose of this study is to gain experience with CREOtC as a possible method to break with this type of teaching and to promote motivation and learning. This qualitative study contributes to knowledge in this field.

The Class for Children with Special Needs as a Case

The class for children with special needs largely practiced CREOtC, and it was thus relevant through a case study (as defined as in Flyvbjerg (2020 p. 621)) to investigate what happened in the teaching, as well as how the

students received it. The article is an analysis of when and how this pedagogy works, and an investigation of whether it can form the basis for development of a Greenlandic CREOtC pedagogy.

The class for children with special needs was followed for half a year with two observation visits in August 2020 and February 2021 respectively, and with collection of empirical evidence such as pictures and written and oral statements in the intervening period. The analysis is ensured by a triangulation of empirical evidence from observation notes, physical objects and pictures taken during class, as well as interviews with students, their teacher, and their social worker from the residential institution.

The class for children with special needs consisted of just two children at the time examined, boys aged 15 and 11. They were placed in a residential institution because they were exposed to neglect and traumatic events before their placement, and as a result have social challenges as well as learning challenges. They are in the class for children with special needs at the local elementary school because the school and Meeqqanut Inuusuttunullu Slunnersuisarfik (the children's social authority in Greenland, abbreviated MISI) assessed that they will not be able to function either academically or socially in a typical class among students in their own age group. The case can thus be described as an extreme case and is therefore not necessarily generalizable in relation to typical classes (Madsen, 2023). However, it can contribute to knowledge and inspire development of CREOtC pedagogy in Greenland.

The qualitative study consists of observation notes, memos, interviews of students, the teacher and social worker as well as photos and physical objects from the teaching, student products and the teacher's PowerPoint presentation of an extracurricular course. Interviews with students and the social worker were semi-structured and primarily with open questions. I also used photo-elicited interviews with the students (Rasmussen, 2017), where the conversation was supported by photos and objects from the lessons they had attended and where I encouraged them to tell what was going on in the picture and what they thought of it. My observation notes from the teaching and the interviews with the two students as well as the interview with their contact pedagogue at the residential institution were coded in the program NVivo 12 Plus. In my coding, I looked for what happened in the teaching. I noted how the students reacted to it and referred to it themselves. I asked their social worker what significance he assessed the CREOtC pedagogy had on their academic and social development. I looked for signs of learning and of motivation for school, but I also had a more open process of grounded coding (Glaser & Strauss, 1967) to minimize the risk of overlooking important elements and contexts that could form a background for new theories. My approach to the analysis is based on Kathy Charmaz' Constructing Grounded Theory (Charmaz, 2014), where results and theory formation are constructed in an interaction between my own preconceptions and data.

The students, the teacher, and the social worker are all ethnic Greenlandic Inuit (Kalaallit), which is the majority ethnic group in Greenland (approximately 90% of the population (Statistics Greenland, 2022)). I am ethnic Danish but lived and worked in Greenland in 2007–2009 and again since 2017.

The Teaching Episodes

In what follows, I will give a brief description of the teaching method that forms the background for the analysis. I have observed parts of the teaching myself, while one of the themes was described to me by the teacher, both orally and in a PowerPoint presentation.

The teacher says that every day she must consider how the students are feeling or

behaving, and that the school day must have many short breaks, so that the students can maintain their concentration. At the same time, she also knows where the students are academically, and constantly tries to stimulate them through optimal challenges, both in academic and in practical skills.

The people in the article are anonymized and the names are made up. Ethical guidelines and rules in the form of permissions from informed participants and parents are complied with.

Greenlandic Plants for Tea and Spices

The course took place in August 2020, and I had the opportunity to observe parts of it. As an introduction in class, they talked about what they knew about the plants they were going to collect. Then they read about the plants. The 15-year-old (in the rest of the article called Julius) read aloud, and as a result the 11-year-old (in the rest of the article called Ivaaq) was inspired and wanted to read a little too.

In preparation for trips out to collect plants, the teacher wrote on the board what materials they should bring, and the students were sent out together to find them in the school building. The teacher told me that when the students had just started the class a few months ago, they were not ready to do such an assignment on their own. But little by little, they became ready for it and she sent them off on the assignment to show them that they could be trusted and take responsibility and build a good relationship with each other.

After collecting plants in nature together with the teacher, the plants were sorted, chopped, and dried in the classroom, and they tasted the herbal tea they had made themselves. It was all documented with photos that were put on the wall in the classroom and supplemented with text the students produced about what happened in the pictures.

The Arctic Hare: The Animal, the Hunt, and the Resource

Later that fall, the class had a theme on the Arctic hare, which is a common mammal that's widespread throughout the glacier-free parts of Greenland. I did not have the opportunity to observe these teaching episodes myself, so my empirical evidence from them is based on interviews with the students and the teacher and a text-supported picture presentation made by the teacher.

The students had themselves chosen the Arctic hare as the theme from a range of Greenlandic animals. The teaching alternated between theory and book-centred teaching in the classroom and hands-on activities indoors and outdoors. The students had to learn about the Arctic hare from textbooks and they had to make mathematical calculations of how big a wooden frame they needed to dry a hare skin. The practical work consisted of, among other things, making the wooden frame, learning first aid and safety in the mountains, practicing walking in the mountains, moving quietly and appropriately in relation to the direction of the wind on a hunting trip, and in handling a weapon safely; all of the activities were preparation for the hunting trip. It was the eldest boy, Julius aged 15, who was going to shoot on the hunt. That was a deliberate choice by the teacher, as Julius had not yet shot his first hare. In Greenland, where hunting is of great importance for identity and for quality of life (Poppel, 2017), it would be an important experience for him to have.

Selected images from the series on the hare theme are shown in this article. Photos that could reveal the identity of the participants or the place have been excluded. The photographer's name is not disclosed for the same reason, but permission to use the images was given. The image series contains pictures from the choice of subject (figure 1), from reading about the hare, from the first aid course (figure 2), from the work of making wooden frame (figure 3), from the hunting

trip (figure 4, 5, and 6), from the handling of the dead game, where it is skinned and dismembered (figure 7), and the skin is prepared for drying (figure 8) and mounted on the frame (9). The last picture (not shown here) shows the Greenlandic tradition *Pagga*, where the teacher throws coins and sweets up for grab while she shouts "Pagga!", and everybody around goes to their knees and tries to collect as many coins and sweets as possible, laughing. This is a widespread traditional way of celebrating first-time happy events in Greenland; for example, that a child has shot his first animal (Hansen, 1989). The dried hare skin is on the shelf next to the box with the dried herbs.

Sled Dogs and Dog Sleds

In February 2021, I observed a theme about the Greenlandic dog sled culture that lasted a few weeks. The students visited and greeted the dogs (the teacher's own dogs) and saw a dog sled and the equipment that goes with it. Back in the classroom, they had to choose a single part of the dog sled equipment to focus on, because, according to the teacher's assessment, it would be too unmanageable for them to work with the entire dog sled in the time available. They had, among other things, tried using the dog whip and got fascinated

Figure 1. The students select what animal they want to work with.

Figure 2. The students practice first aid before going hunting.

Figure 3. The student makes a wooden frame for the skin.

Figure 4. The student on the hare hunt.

Figure 5. The student has been successful on the hare hunt.

Figure 6. The student celebrates his success: his first hare!

Figure 7. The student dissects the hare and prepares it to be cooked.

Figure 8. The student cleans the skin.

Figure 9. The dried skin is put on a frame as a gift to his parents.

by it, and therefore chose that as their focus.

Once the dog whip was chosen, the students had to read about it and see drawings on how it was made and what it was made of. When they found out that the strap was made of bearded seal, they found a picture of the seal species and gained some knowledge about it.

They also had to make their own dog whip. When making the shaft for the dog whip, the teacher worked on her own shaft alongside the students, because in her experience, they were more motivated if they saw her doing the same.

To learn more about the use of dog whips, the teacher invited two dog sled mushers to visit the class to talk about how they used their whips when mushing dog sleds. One of them was a full-time hunter and used the dog sled when muskox hunting in winter, and the other drove with tourists and as a hobby. The students prepared for each visit by writing down questions for the mushers. During the visits, one asked questions and the other filmed, so that they could subsequently watch the footage and talk about it, thus retaining what they had learned.

Naturally, the students also had to test their dog whips. It took place in the school yard, where they practiced hitting bottles and cones, and where they made a small competition with a points system, so they had to make simple calculations. They agreed that the next day they would make a dog whip competition for the other students at the school during a break.

The dog sled theme also included them helping to feed the dogs with meat scraps they got from some of the full-time hunters in the village. In class, they made a calculation on how much it costs per year to feed the dogs with purchased sled dog food. The highlight of the theme was a dog sled ride, something neither of the students had tried before. On the trip, their newly acquired skills on how to use the dog whip were put to good use, because during the breaks they were asked to keep the dogs calm by standing in front of them with the dog whip ready to use, to prevent the dogs from starting a fight with each other.

CREOtC Can Motivate Students

The collected data were divided into three general categories: 1. The framework of the teaching, 2. The students' reaction to the teaching, 3. Factors that influence the students' reaction. The first category, teaching framework, refers to where the teaching takes place and the overall subject. Here are the three most frequent codes in order: 1. EOtC, 2. Greenlandic culture 3. Academic learning. I define EOtC as when the teaching takes place outside the classroom; Greenlandic culture is defined as when the subject of the teaching is traditional Greenlandic culture or traditions, such as the traditional use of herbs, traditions associated with hunting or dogs and the dog sled and other related skills. It was expected that this category was often coded for, since it was the theme in the teaching. I explored whether it was linked to motivation and learning, and what happens when that is the theme. Academic learning is defined by knowledge being obtained via books or the internet, or when students do mathematics, read or write. The three codes are not opposed to each other, they may well appear simultaneously.

In the second overall category, students' reaction to teaching, the three most frequent codes are: 1. School motivation, 2. Signs of learning and 3. Joy, mentioned in decreasing frequency. I have defined school motivation as occurring when the students seem to be interested in what is going on in class, such as by appearing eager and interested or talking about it and maintaining focus on schoolwork, even when it is challenging. I saw signs of learning as when the students could answer questions and solve the tasks the teacher set, as well as when they could work meaningfully with the subject in focus, when they talked meaningfully with each other about it and possibly asked relevant follow-up questions. I coded joy when the students seemed obviously happy because they were smiling, laughing or said they were happy or felt well.

70% of the times where outdoor education was coded, there were signs of school motivation. 50% of the times there were signs of learning, and 38% of the times the students showed joy. It is thus clear that the students are motivated when teaching takes place outside the classroom, and moreover that both learning outcomes and enjoyment are high in this type of teaching.

In the third overall category, factors that influence the students' reaction are most frequently occurring in the following order: 1. Mastery experience, 2. Authenticity and 3. Smooth room (defined as described in Kristensen, 2013), and 4. Relationships. These reactions are strongly linked with EOtC and Greenlandic culture and appear to be important for motivating and achieving learning. In figure 10 I have shown how the categories are connected. The findings are not surprising; research has shown that these factors often are present in EOtC (e.g., Bærenholdt & Hald, 2020; Jordet, 2010) and Culturally Responsive and Place-Based Education is suitable among Indigenous people and in isolated communities (Borden & Wiseman, 2016; Boyer, 2006; Gruenewald & Smith, 2007; Sianturi et al., 2018).

I will now define the categories and describe them with specific examples from data, as well as discuss them with research and theory from the field.

Mastery Experience

Mastery experience is the most frequently occurring reason for the students to feel motivated for school. The experience occurs when the students work hands-on and EOtC-based, and it is only found when also associated with the code “Greenlandic culture”. Mastery experience is the feeling that occurs in a person who has succeeded in solving a task or dealing with a situation that is challenging or new and unfamiliar (Bandura, 2020). In learning, it is about optimal challenge, which means that the task

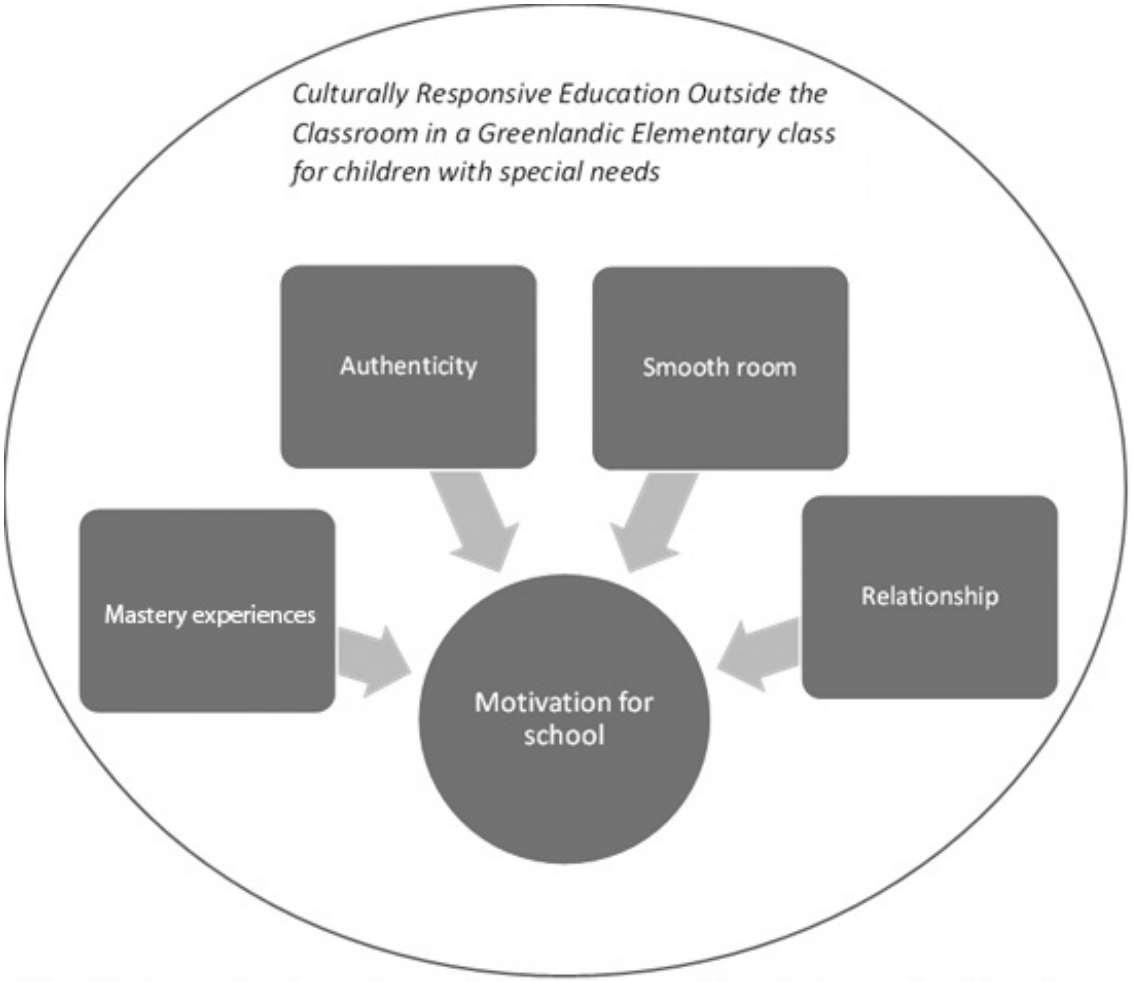


Figure 10. Factors that have shown to have influence at Culturally Responsive Education Outside the Classroom in a Greenlandic Elementary class for children with special needs.

is neither too difficult, such that the student cannot cope with it, nor too easy, such that the student will be bored. If the task is too difficult, it can threaten the student's self-esteem and lead to declining motivation, as the student may withdraw, trying to protect themself from defeat (Ågård, 2018, p. 37). On the other hand, tasks should not be too easy either, as this leads to boredom, which also results in lower motivation. With optimal challenge, the feeling of mastery arises when the student, through his or her own effort and persistence, succeeds in what he or she is doing, which spontaneously feels satisfying. The student feels competent, and this provides intrinsic motivation (Ryan & Deci, 2000b).

In the process with the dog sled, there are a number of examples of mastery experiences. An example is that Julius becomes good at and preoccupied with working with wood, when they are working on making a handle for a dog whip, illustrated in the following observations:

"They are focused when working with the wood. The teacher also works on her craft. It is obvious that the students are motivated and very happy to work on their crafts. Julius in particular seems to enjoy it. He doesn't want to stop when they have to clean up... Julius keeps working and is concentrated and focused on the work all the time. Even during the evaluation 15 minutes before the lesson ends, Julius continues to work concentrated." (Observation notes).

Two days later: *"They go to the wood craft room and work on the dog whip. They enjoy it and they work concentrated. Especially Julius, who persists and seems very focused on it." (Observation notes).*

In the examples mentioned, Julius not only has an experience of mastering the woodwork, he also entered a state of flow, because the work is an optimal challenge for him, and he thus feels intrinsic motivation, which helps him maintain the learning situation (Ågård, 2018; Ryan & Deci, 2000a).

They subsequently had to try using the whips. Ivaaq in particular enjoyed this activity and gained a sense of mastery. He was the first to go out of the classroom and down in the schoolyard with the whip, and he was occupied with the activity for a long time:

"Ivaaq in particular is very busy practicing with the whip. He cannot stop and challenges himself by putting an empty bottle on a climbing frame to hit it. When another student shows up in the schoolyard, Ivaaq tells him that tomorrow the other students will have the opportunity to try the whip as well. Ivaaq and Julius will direct, and they are looking forward to it." (Observation notes).

They were proud of their skill and looked forward to sharing it with the others. Their experience with school thus far has been that they usually were not among the best students. In the situation described above, they were the experts and they were the ones that could show it to the others. They felt competent and proud.

Ivaaq's new skills in using the dog whip also came into use during the sled ride, where this example is from:

"During a break, the dogs are asked to lie down and are held in place with the dog whip. At first the sled musher does it, but Ivaaq also tries to do it too. He really feels competent." (Observation notes).

There was a power struggle in the dog pack between the alpha male and a young male dog that wanted to challenge the alpha male's position, which the dog sled musher did not want to happen. Those who know Greenlandic sled dogs know that it takes authority and attention to handle and be the leader of a pack of sled dogs, especially when there are power struggles within the dog pack. So success for an 11-year-old, who was not used to dealing with and handling sled dogs before this course, was an achievement, which he was very proud of and was praised and recognized for by the adults.

Ivaaq had another mastery experience on the sled ride, that he proudly described the next day in the classroom. He said that:

"He was at one point running next to the sled. Then it was just about to run away from him - so he hurried to jump on the sled. He told his mother about the experience and that he was running next to the sled." (Observation notes)

Ivaaq had previously struggled with obesity, overeating and lack of physical activity, so having had to exert himself physically and succeeding was mastery for him. He was so proud of his accomplishment that he told his mother about it, when he spoke with her on the phone after the sled ride.

The course with the Arctic hare also gave rise to many mastery experiences. As previously mentioned, it was Julius who, as the oldest in the class, had to shoot if they came within range of a hare. He succeeded, and he had his first Arctic hare kill. In Greenland, with such a strong and living tradition of hunting (Poppel, 2017 p. 56), it is a big day when a boy kills his first game (Hansen, 1989 p. 1). That this was also the case for Julius, was clear from a photo taken of him after the hare was shot, where he triumphantly holds the hare up in outstretched arms above his head (figure 6).

Hunting is usually a tradition that is passed down in the family from one generation to the next, often from father to son, but the

students' own families did not have the resources to give them this experience and these skills. This emphasizes why CREOtC that includes Greenlandic traditions makes very good sense for students who come from a socially burdened background.

It is a Greenlandic tradition to celebrate the first time a child has made his first kill on a hunt. It will usually be celebrated by his mother shouting *"Pagga!"* and throwing coins and sweets up for grab (Hansen, 1989). Julius' mother is sadly deceased. Instead, the teacher stepped in and made "Pagga!" for him at school, so he also could have that experience. It can, of course, never replace the loss of his mother, but through this act, Julius gained both an experience of mastery and connection with his own culture.

The students had on their own chosen the theme on the Arctic hare, and it was Julius' choice whether or not he wanted to shoot the hare. The students thus had a level of autonomy in the teaching. Combined with the experience of mastery and connectedness, as described above, this means that the three basic psychological needs, to feel competent, to feel related and to feel autonomy, which, according to Self-Determination Theory must be met to achieve intrinsic motivation (Ryan & Deci, 2000b), were present in this teaching course about hunting.

Authenticity in EOtC

The above-mentioned examples with mastery experiences were characterized by also being authentic, in the sense that the skills the students had to learn were situational. The hunt and preparation for the hunt were authentic: It was not a given that they would come within range of a hare, so it was a necessary exercise to learn to move quietly in nature and learn about the importance of wind direction and check the weather forecast before departure to increase the possibility of success during the hunt. Learning first aid was about safety on the trip. The mathematical calculations and making a wooden frame for hare skin had a purpose.

In general, authenticity and situated learning characterized the teaching that took place in the class: When they read, it was to gain some knowledge that they had to use for something. When they were out in the field, it was with a specific goal in mind, such as collecting herbs for tea, hunting, or feeding sled dogs. When they did math, they calculated how much it costs annually in feed to keep sled dogs, or they calculated the measurements of the handle of the dog whip or the frame of the dried hare skin. The sled mushers who visited the class were recognized as skilled in their field and respected in the local community and the students seemed impressed and star struck. The dog sled mushers were authentic people.

Jordet emphasizes that authenticity, or what he calls the "situational (situated) nature of learning", promotes learning and that it can be fulfilled in EOtC (Jordet, 2010). Jordet argues that, together with the relationship-building nature of EOtC, and through language and actions and active participation, it provides a meaningful practice that one-sided learning in the classroom cannot provide (Jordet, 2010 pp. 204-205).

Christensen (2019) observed how children at a Greenlandic reindeer hunter camp learned skills and knowledge through authentic learning situations they found themselves in, by learning from nature and copying what experienced hunters do and testing and practicing (Christensen, 2019). The children were highly motivated to learn, they included it in their play and they acquired many skills during the hunting season, which was the opposite of what sometimes happens in the Greenlandic elementary school (Christensen, 2019; Demant-poort & Andersen, 2022; EVA, 2015). Christensen observed that the activities and surroundings at the camp supported the children's learning, and that the adults, with their skills and knowledge, invited the children into a learning culture that

was appreciative and community building, and the adults became role models for the children (Christensen, 2019, pp. 8-9). She is critical of the current approach to education in Greenland as well as in Denmark and argues for the development of a pedagogy where surroundings, nature and community are included in teaching through practice (Christensen, 2019, p. 11).
Both Jordet and Christensen point out that this type of learning provides general education and competence to act, which is a prerequisite for sustainable development (Christensen, 2019; Jordet, 2010).

Smooth Room in EOtC

Smooth room means a space where there is room for students' different needs and abilities and where participation at different levels is possible (Kristensen, 2013). This is the opposite of a striate room, where there is just one or a few success criteria for the students, both in relation to academic goals and to behaviour, and thus also the risk of experiencing failure and defeat in teaching (Kristensen, 2013). Both Julius and Ivaaq benefit from being in a smooth room, and the EOtC pedagogy can offer that, as there is the possibility of participation on several levels and of flexibility. The fact that there are few students in the class combined with the good knowledge the teacher has of her students is fundamental for the teacher's ability to quickly change the educational design and continuously adapt it to how the students feel, which, according to a statement from the teacher, she has to do in order for the teaching to work. According to the residential institution, Ivaaq has mild ADHD, is easily distracted and often becomes restless. The EOtC pedagogy with shifts between practical, hands-on tasks and sedentary tasks in the classroom suits him well. It is taken into consideration that he is still able to listen even though he no longer can sit still on his chair:

"Ivaaq is restless and walks around, sits on the table, lies down on the table, gets his boots and puts them on. He still listens and comments on what is read." (Observation notes).

Another example a few days later: *"Ivaaq lies down on the floor and listens... Ivaaq constantly signals that he is listening by saying "hmm" or making small comments." (Observation notes).*

Later the same day: *"Ivaaq walks around restlessly ... Then he goes out the door and looks in through the window at Julius. He is called back in and enters. Then he opens the door to another room and is called in again. But he listens during the evaluation and make relevant comments." (Observation notes).*

Julius also needs a smooth room at school, as he can alternate between being very quiet and reserved to happy and talkative. If he is quiet and reserved, the teacher must be careful not to press him to do schoolwork, as there is a risk that he will become even more quiet *(observations and statements from the teacher)*. An example of how it can change over the course of a day, and how EOtC pedagogy makes room for it, can be seen from the following, where the first lesson begins for Julius:

"Julius is a bit reserved and depressed and does not want to say anything. He sits and looks down and fiddles with his zipper. He has not taken off his jacket. When the teacher asks him about the day and date, he won't say anything. He won't say anything at all, even if the teacher talks to him." (Observation notes).

Later the same day: "*Julius and Ivaaq start talking as they get ready to go out, and Julius seems happier." (Observation notes).*

They go outside and practice using the dog whip, but Julius still does not want to participate actively: "*Ivaaq wants to practice, but Julius does not want to. He stands on the hill and watches." (Observation notes).* The activity outdoor gives room for different degrees of participation, and there are no compulsions.

On the same day, they get a visit from a

dog sled musher and Julius becomes very interested in what he has to say. Later he says it was fun. After the visit, they must watch the film they recorded of the visit and the interview of the dog sled musher. The technique causes a little trouble, but Julius gets a handle on it and is praised by the teacher, which becomes a mastery experience for him. The last activity of the school day takes place with woodwork, where Julius can immerse himself and get into flow. So, after having a varied day of switching between classroom teaching and outdoor teaching, and where Julius has gradually become more active and participating, I note: *"Julius has become much happier now. He laughs." (Observation notes).*

The EOtC pedagogy with the smooth room, where there is the possibility of different degrees of participation, provides space for both boys with their different personalities, which is illustrated in a situation where they must prepare food for the sled dogs:

"Ivaaq likes to cut meat for the dogs, he eagerly helps the teacher. Julius looks at the dogs in the kennel, talks to them and is preoccupied with them. He does not want to help cut meat, and the teacher says that he is reluctant to do such things. He is not used to it. It was a victory for him to dismember and handle the hare." (Observation notes).

The social workers at the boys' residential institution told me that after they had started in the class for children with special needs, where EOtC is practiced, the boys had started to like school. Previously, their schooling had been characterized by interruptions, and by an experience of defeat, both academically and socially. My observation is that the smooth room for learning the students encounter in EOtC gives them space so they don't feel alienated from school, and it gives them mastery experiences because of the possibility of success on different levels. The soft space provides an experience of autonomy and of competence, two basic needs to achieve motivation according to research (Ågård, 2018; Ryan & Deci, 2000a), which I also observed.

The Power of Belonging

One of the three basic needs that, according to Ryan and Deci (2000a) must be fulfilled to experience intrinsic motivation, is the experience of belonging, of feeling connected in a community. The teacher told me that she deliberately tries to encourage the students to build good relationships with each other, which she did, among other things, by letting them solve tasks together. I also observed that they got along well despite differences in age and personality. They also had a good relationship with the teacher, who knew them well, which gave her the conditions for having a soft learning environment that still challenged the students, so that they developed academically and socially. On Monday mornings, the teacher deliberately spent time letting the students talk about their weekend to strengthen the relationship. The students liked it: *"The boys seem happy to come to school and they enjoy sharing what they have done at the weekend." (Observation notes).*

With these relationship-building methods, the teacher gave the students an experience of belonging in the class and in the class community and thus fulfilled a basic need to achieve intrinsic motivation for learning (Ågård, 2018; Ryan & Deci, 2000a). Louise Klinge's (2016) research has also shown the importance of the relational competence of teachers.

The social workers from the residential institution point to the teacher's good relationships with the students as an important reason for the success she has with the class. They said that the students have changed a lot, they are now more satisfied with school and have developed their social skills, which includes getting along better with other children and improved social skills.

A Pedagogy for the Future?

A relevant question is whether the students' positive development leaves a lasting mark and becomes significant beyond school. Other studies suggest that teaching in nature and the outdoors can have a positive, long-term effect. Gray and Pigott (2018) found positive effects in some students 30 years after they had had a school year with regular learning in nature. Their study showed that teaching in nature produces long-term effects in the form of resilience, reflection and relationships. It is due to positive psychology, thoughtfulness, storytelling, Indigenous teaching and slow pedagogy (Gray & Pigott, 2018). Gray and Pigott define Indigenous teaching as teaching that creates a connection to the land, culture, traditional knowledge and storytelling. These results indicate that it will be relevant to include these elements in a Greenlandic CREOtC pedagogy, as well as producing long-term studies of the importance of this form of education.

Being Connected: A Conclusion

The case study has shown that EOtC pedagogy is suitable in this small class for children with special needs. The educational design provides motivation for school, and the students show signs of learning and of joy. Mastery experiences, a smooth room and good relationships give students an experience of competence, autonomy and connectedness, which, according to Self-Determination Theory, explains the observed motivation for school in students (Ryan & Deci, 2000a).

Inclusion of Greenlandic cultural traditions such as hunting and dog sledding can provide an experience of connectedness on a more general level with the Greenlandic students' own culture. The situational, student-activating learning, the authentic local knowledge keepers, the hunt, the animals and the nature provide authenticity and thus become meaningful for the students. According to Gray & Pigott (2018), this form of teaching can promote resilience, reflection and positive relationships in students for the long term. The teaching becomes formative and gives action competence, which lays the foundation for sustainable development (Christensen, 2019; Jordet, 2010).

Combined with the knowledge we have about the importance of staying in nature and the traditional use of nature in the form of hunting, fishing, and gathering berries and herbs for resilience and quality of life in Greenland (Ottendahl et al., 2021; Poppel, 2017), my findings suggest that CREOtC as practiced in this study is suitable at the Greenlandic elementary school. Long-term studies as well as the inclusion of storytelling and slow pedagogy will be needed in the further development of a Greenlandic CREOtC pedagogy.

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Endnote

[1] The school for the children with special needs ends at 11.30 a.m. each day.

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Are Your Outdoor Learning Participants Under the Influence?

By Simon Priest

Sally was an outdoor instructor sweeping a group of cross country skiers on the final day of a three-day winter camping trip. Following the group's ski tracks, she noticed one set of tracks heading off into the trees and assumed the participant was experiencing an early morning bio-break. She waited. After no appearance, she called out. After no answer, she went to investigate. She found a pair of skis and poles abandoned in the fresh snow on the other side of the trees. She saw John walking across an avalanche chute. He was unresponsive to her calls. She skied above his post-holed foot prints and noticed that a crack in the snow layers was running between holes. When she reached John on the far side of the chute, he was disoriented and not making sense. Unable to return across the avalanche chute, and unwilling to descend it, she helped him down a nearby rocky ridge to the waiting group below. As they climbed down, he remained confused and uncooperative to directions. Once safely away from the danger, John was examined for likely head injuries and found to be under the influence of illegal drugs.

This true story (details changed to protect the players) is an isolated and rare 1970s event, but indicates a problem that is now growing rapidly in our profession. When you deliver an outdoor learning program for participants in an educational class, corporate team or tourist group, can you tell how many of them are under the influence of alcohol, cannabis, opioids or other drugs, even prescribed medications? This article overviews these five substance categories, examines their consumption among Canadians, and discusses impairment impacts for driving (essential activity of daily living) and outdoor learning (elective activity for quality of life). Both demand the complex interaction of operational, perceptional, cognitive, motor, and psychological competence. Practitioner recommendations flow from these analyses.

Adventurous Outdoor Learning

A toxicological study of remote and inaccessible wilderness search and rescue operations in Arizona concluded that the blood of 100 fatality victims tested positive for alcohol (50%) and other drugs (12%). The grave proportional influence of substances presented a fatal concern for the self-guided participants (Goodman et al, 2001), who were not engaged in organized adventurous outdoor learning programs.

Adventurous outdoor learning involves activities wrought with risk, conflict, difficulty, natural beauty, and sometimes hardship. Engaging in these can positively change the way participants feel (recreation), think (education), behave (development) or resist help to transform (therapy). Practitioners working in this profession are called upon to ensure the safety of participants, while engaging them in perceived risky and uncertain activities. Practitioners must manage dangers, protect the natural environment from damage, teach participants how to plan trips and learn technical skills, supervise and coach participant performances, and transport them before, during, and after the trip (Priest & Gass, 2018). The consumption of alcohol, cannabis or other substances can negatively impact practitioners' work performance, ability to employ sound judgement, make decisions and solve problems. Use of drugs and alcohol can endanger the participant, negatively showcase the entire profession, and expose employers to enormous liabilities. A closer look at these potentially disruptive substances is warranted.

Alcohol

When they stumbled off the bus, some of them couldn't even stand up. They had been drinking for hours and we had to substitute table puzzles and cognitive problem solving activities for the ropes/challenge course.

—Statement from the outdoor coordinator of a corporate team-building event as part of a 1990s sales incentive and reward program.

In Canada, the legal age for drinking alcohol (and consuming cannabis) is 19 in most provinces, but 18 in Alberta, Manitoba, and Quebec. Between April of 2020 and March of 2021 (early COVID-19 pandemic), per capita weekly alcohol sales to legal drinkers consisted of 3.9 beers (341 mL, 5% alcohol), 2.6 spirits (43 mL, 40% alcohol), 2.5 wines (142 mL, 12% alcohol), and 0.7 ciders and coolers (341 mL, 5% alcohol) for a weekly total of 9.7 standard drinks per Canadian (Statistics Canada, 2022). However, beer sales had decreased 2.3% from the previous year to an all time low since 1949, but were compensated by a 2.7% increase in the sales of spirits, ciders and coolers (Statistics Canada, 2022).

Compared to other nations in 2019, Canada came 52nd out of 185 countries for alcohol consumption, with Canadian males consuming three and a half times as much as Canadian females: 14 litres versus 4 litres per year (World Population Review, 2023). These numbers are about twice the global average for all nations and indicate Canada is not unusual in its alcohol use. The order of the USA (38th), Australia (35th), New Zealand (30th), UK (20th), France (13th), Ireland (5th,) and Germany (3rd) puts this in perspective.

Driving under the influence of alcohol (DUIA) has long been a concern, with Canadians born outside Canada (immigrant citizens) less likely to engage in DUIA than Canadians born in Canada (Le et al, 2021). Something about our Canadian culture or condition seems to accept having 2+ drinks and then driving home. The risk of an alcohol-impaired crash doubles when driving with blood alcohol levels measured between 0.05% and 0.08%, which is just under the legal limit in Canada (Brubacher, 2011).

In Canada, raising the price of alcohol by adding additional taxes, during the 1990s, has been shown to reduce the public consumption of alcohol and, consequently, has also decreased alcohol-related motor vehicle accidents and alcohol-related traffic offenses (Adrian et al, 2001). While these reductions were very pronounced in the 1990s, research observations since then show a less distinct decline in alcohol-related fatalities and a slight increase in the number of drivers reporting inebriation and choosing not to drive (Vanlaar et al, 2012). Nevertheless, alcohol-related driving accidents, injuries, and deaths are still a big problem in Canada with 10% of Canadians estimated to persistently drink and drive (Simpson, 2022).

Blood alcohol concentration (BAC) is measured by sampling and assaying blood or can be estimated by breathalyser technology. BAC is expressed in milligrams of alcohol per 100 millilitres of blood or as a percentage. In Canada, driving with a BAC above 80 mg/100 mL or 0.08% is a criminal offense. Drivers with lower BAC (0.05 – 0.08%) can face immediate roadside suspensions and other sanctions such as fines (maximum $1,000) according to provincial or territorial traffic laws (Canada Safety Council, 2022).

The more alcohol one drinks, and as BAC increases, the more alcohol effects worsen and build on one another. Here is a rough guide for what to expect (Mothers Against Drunk Driving Canada, 2014).

- **0.02 < BAC < 0.05%**: Drinkers' muscles feel relaxed and possibly warmer (due to blood vessel dilation near the skin). Their moods will be slightly altered (usually happier) and they are now likely to make poor decisions. They may interact more socially and become quite talkative.

- **0.05 < BAC < 0.08%** (under the legal limit): Drinkers are more euphoric, but less alert. Their behaviours become exaggerated, voices become louder, and gesturing becomes overstated and uncoordinated. They lose control of small muscles and have trouble focusing their eyes (blurry vision). They have trouble thinking clearly, reasoning or remembering and they experience difficulty making decisions. Inhibitions are lowered, so they can be more easily manipulated by others, and

their emotions may be more intense (presenting uncontrollable crying or arguing).

- **0.08 < BAC < 0.10%** (over the legal limit): Drinkers lose coordination and have trouble walking or moving. Their balance, speech, hearing, and reaction times deteriorate. They have difficulty concentrating, remembering, perceiving, interpreting, deciding, and detecting dangers.

- **0.10 < BAC < 0.15%**: Drinkers lose self-control and the ability to react to events. Their speech is badly slurred and most senses are compromised. They will have trouble balancing to stand and will need help walking or moving, because they can no longer coordinate their limbs. They may become anxious, depressed, uneasy, and unable to think or explain what they want to do.

- **0.15 < BAC < 0.20%**: Dizzy and without control over their balance, drinkers will fall and may unknowingly injure themselves, since they are anesthetized from pain by the alcohol. They may vomit, unless having built a previous tolerance for alcohol, and can choke or aspirate due to a compromised gag reflex. They can become fatigued, confused, belligerent, and quick to anger.

- **0.20 < BAC < 0.30%**: Dazed and disoriented, drinkers will not recognize the time or place. They can also experience blackout episodes and not recall what went on at this point, thus making them susceptible to participating in fully uninhibited events (violence or unprotected sex).

- **0.30 < BAC < 0.40%**: Drinkers may experience an accelerated heart rate, irregular breathing, and compromised circulation of oxygen to the brain due to alcohol acting as a depressant of these functions. Drinkers may lose bladder control, be unable to move or roll over, exhibit pale discoloured (blue/grey) skin and not respond to touching or talking. They will eventually become unconscious, lapse into a coma, and overdose from acute alcohol poisoning.

Alcohol can create a number of concerns for use in outdoor learning. Aside from interfering with senses (seeing, hearing, smelling, etc.), cognitive processes (speaking, concentrating, remembering, reasoning, perceiving, interpreting, deciding, detecting dangers, making decisions, solving problems, judging, etc.), and physical performance (balance, movement, reaction time, etc.) in outdoor learning, alcohol also increases the chances of becoming hypothermic. Since alcohol dilates blood vessels and makes people feel warm, they erroneously believe that ingesting alcohol in winter will warm them up. Alcohol has the opposite effect: it causes people to lose body heat rapidly and accelerates the hypothermic process.

This heat-shedding characteristic of alcohol has an additional concern when combined with water immersion. From 2013 to 2017, alcohol was present in 44% of fatal drownings for Canadians aged 15–64 years old, in 35% of boating deaths, and in 31% of swimming deaths (Life Saving Society, 2020).

Cannabis

> *We expected to have the snowy summit to ourselves, but found a group of six sharing several joints while we ate lunch. The skunky smell was disturbing. Luckily, they didn't follow us when we left the peak with dark clouds approaching. We have no idea when they departed or how they got home safely.* — Outdoor club trip report, circa 2005.

One in five Canadians over the age of 15 consume cannabis. Of this 21%, 13% were recreational users, 4% were medical users, and 5% used cannabis for medical and recreational purposes. Medical users provided reasons such as pain relief (75% of the elderly), mood alteration (63% of youth seeking to escape anxiety or depression), and sleeping problems (37% across all ages). Recreational users reported smoking or vaping (83%) as their primary means of consumption, while medical users reported smoking or

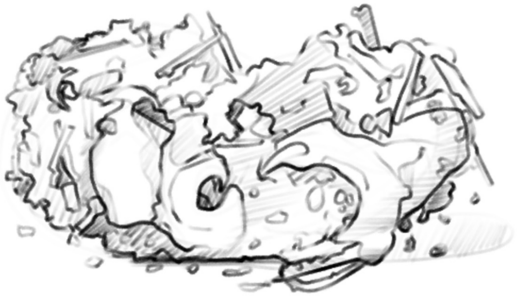
vaping (47%) balanced with ingesting or other methods (53%) of consumption (Health Canada, 2021).

Canada was the second country in the world (after Uruguay) to legalize cannabis on October 17, 2018. The Cannabis Act, or Bill C-45, was intended to bring increased quality, supply safety, and tax income, with decreased access for minors, illicit product, and criminal trafficking (Health Canada, 2018). However, despite these obvious potential benefits, the difficulty in measuring potency, intoxication screening, and fostering additional harms were not well considered by the rushed legislation.

Driving under the influence of cannabis (DUIC) is a growing concern (Leadbeater et al, 2017). Cannabis has been determined to at least double the likelihood of a motor vehicle collision and almost triple the likelihood of a resulting fatality compared with non-impaired drivers (Asbridge et al, 2011). An American actuarial study found a 5.8% rise in traffic collision injuries and a 4.1% rise in fatal crashes after cannabis was legalized in five states: Colorado, Washington, Oregon, California, and Nevada (Farmer et al, 2022).

A quarter of respondents to the Canadian National Cannabis Survey (2021), between the ages of 15 and 24, reported being at risk of cannabis-related motor vehicle accidents by driving within two hours of their own consumption (14%) or being driven by someone who had consumed within two hours (12%). Three quarters of frequent users reported driving while intoxicated or riding with an impaired driver and 64% of males and 33% of females admitted to driving under the influence of cannabis within the last month (Leadbeater et al, 2017). A survey of cannabis-using Canadians, aged 16 through 30, found that they were less critical or concerned about cannabis-impaired driving compared to alcohol-impaired driving. As expected, the more cannabis consumed by respondents, the lower were their perceived risks of motor vehicle accidents and their willingness to drive impaired (17%) or ride with an impaired driver (40%). They were also less likely to intervene in the event of impaired driving (Goodman et al, 2019).

In 2020, the federal government amended the Canadian criminal code by inserting standards for DUIC according to THC (Δ^9-tetrahydrocannabinol) levels: cannabis' active and impairing chemical. Drivers with a blood THC level of <2 ng/mL are considered not impaired, while those between 2 and 5 ng/mL are impaired and subject to summary conviction and offence fines. Those with blood THC levels > 5 ng/mL (and/or those with > 2.5 and blood alcohol levels of 0.05%) may be subject to additional indictable incarceration (Parliament of Canada: The Senate, 2020). The interactive effect of cannabis and alcohol is known to be synergistic: greater combined than either alone without the other (Hartman et al, 1979).



Biochemically, cannabis contains over a hundred chemically active components collectively called cannabinoids. Two important ones are Δ^9-tetrahydrocannabinol (THC) and cannabidiol (CBD). While THC is the main psychoactive component, CBD is currently classified as a herbal dietary supplement endorsed with so far unverified claims of healing or curative properties (Novella, 2020). CBD is thought to dampen the action of THC, when present simultaneously (Boggs et al, 2018). Like any chemical compound, both components of cannabis offer health benefits, but bring consequential side effects.

Cannabis is commonly used as treatment for pain, nausea, anorexia, insomnia, depression or anxiety, during palliative care, radiotherapy or chemotherapy, and for relief of symptoms from multiple sclerosis, spinal cord damage, epilepsy, glaucoma, asthma, migraines or rheumatoid arthritis (Health Canada, 2020). Cannabis smoke

contains many of the same toxins, irritants and carcinogens as found in tobacco smoke. Smoking or vaping cannabis can aggravate asthma, suppress the immune system, and damage the cardiovascular system (Canadian Centre on Substance Use and Addiction, 2023). Evidence supporting these claims is scant, and much more randomized clinical control trials research is needed.

The positive effects of CBD are believed to include relief from the difficulties associated with dystonia (muscle spasms or contractions), anxiety, insomnia, inflammatory skin and bowel diseases, Alzheimer's, and Parkinson's diseases. In some, CBD taken alone has negative side effects such as dry mouth, diarrhea, appetite loss, drowsiness, fatigue, and damage to liver or male reproduction (Health Canada, 2020).

The positive effects of THC last for up to 24 hours and include a high or stoned feeling of euphoria, a sense of well-being, a state of relaxation, and heightened senses. For some, additional negative effects may include confusion, fatigue, apprehension, and impaired memory, concentration, attention, intelligence, cognition, and reaction time. In a few, paranoia, delusions, and hallucinations can occur. Depending on the method of consumption, the same results as smoking tobacco are likely: damage to lungs or blood vessels, blood pressure drop (fainting), increased heart rate, and heart attack risk (Health Canada, 2022).

Frequent (daily) use of THC increases the irreversible chances of depression, anxiety disorders, suicide, psychosis and schizophrenia. The latter two are especially risky with high potency products, for those with a family history of these diseases, and in children who start consuming before the legal age of 18 or 19, since the prefrontal cortex of the brain is still developing until around the age of 25. Combining tobacco with cannabis can increase the psychoactive properties of THC and the risk of those conditions associated with frequent use, including a greater likelihood of addiction. Occasional use has short term effects such as the inability to safely drive or operate machinery and can make remembering or learning new skills extremely difficult (Health Canada, 2022). This has obvious implications for outdoor activities.

Cannabis is typically absorbed through the lungs (smoked or vaped), skin (liquid topically applied) or stomach (ingested). Without standardized dosage units for THC and CBD, poisoning is more common with "easy to overeat" edible cannabis products than with inhaled ones (Freeman & Lorenzetti, 2019). Looking like candy in eye-catching and easy-open packages, edibles are attractive, tasty, and effortlessly accessible to younger children, who quickly over-consume these to the point of subsequent poisoning. After new legislation in Canada, frequency and severity of cannabis poisoning increased for children admitted to intensive care units, while intention to ingest and average age decreased (Cohen et al, 2021; Myran et al, 2022a). While this represented a 2.6 times increase in cannabis-related admissions overall once legal edible sales began in 2020, provinces allowing sales (Alberta, British Columbia, and Ontario) showed a 7.5 times increase in cannabis-related admissions for children under 10 years of age compared with one province (Quebec) that did not allow sales of edibles (Myran et al, 2022b). How many children smuggle edibles or other substances to their school, camp or outdoor learning field trips?

Since Canada is one of the few world nations to legalize cannabis, tourists are now travelling to our country in hopes of experiencing their first high. Thought by some to be a deviant pursuit (Ying et al, 2019), cannabis tourism is definitely growing (Liu & Stronczak, 2022) and remains poised to be a new growth sector that legitimizes and normalizes cannabis (Dupej & Nepal, 2021). Formed late in 2022, the non-profit Canadian Cannabis Tourism Alliance represents this sector of federal tourism. By partnering industry and academia, they offer "a diverse perspective on what a vibrant and viable cannabis tourism industry could and should look like" in Canada (Canadian Cannabis Tourism Alliance, 2023, p.1).

A Google search of "cannabis" and "outdoor activities" revealed dozens of home-grown articles on the best things to do outside when high or stoned. One such American article described the ten best strains of cannabis to use while engaged in extreme sports like mountain running, rock climbing, whitewater paddling, backcountry skiing, snowboarding, and downhill bike riding (Gruetzmacher, 2017). Canada's use of cannabis is being promoted into all aspects of society including active outdoor adventures.

Opioids

> *While out for a family bicycle ride with my children on a hot summer day, we came across a cyclist who appeared to have overdosed. He was lying in a shallow ditch beside the bike path with his bicycle on top of him. I initially suspected an accidental bike crash. He was alone and semi-conscious, but non-responsive to my shaking and shouting. His lips and nails were grey in colour, his pupils constricted, his skin blue, and his breathing was slow and shallow. I administered naloxone nasal spray from my medical kit and by the time the ambulance arrived, he was breathing normally and well on his way to being fully conscious again.* —Story related by a colleague/physician, circa 2020.

Canada has been suffering through an opioid crisis with an average of about 11 deaths per day in 2017, where 94% of those overdoses were accidental and due to fentanyl-contaminated street drugs. Then, Canadians, aged 15 to 24, were the fastest-growing population requiring hospital care from opioid overdoses (Health Canada, 2019). Life expectancy for Canadians had been climbing steadily since 1995, but 2017 was the first year without any increase due to the accidental opioid overdoses among young adult men in British Columbia (Statistics Canada, 2019). Worsened by the COVID-19 pandemic, the average 2022 death rate almost doubled to 21 per day with 96% accidental overdoses. Three quarters of deaths were male, most (88%) were aged 20-59 years, involved fentanyl (81%), only a fifth (22%) were legally prescribed pharmaceuticals, and half (53%) mixed in a second substance. Of the average 17 overdoses per day requiring hospital care in 2021, 70% were accidental. During that same year, a total of 30,638 Emergency Medical Service responses were made to opioid overdoses (Health Canada, 2023).

In 2018, opioid-related fatalities surpassed motor vehicle mortality and accidental premature death (Fischer et al, 2018). That same year, 12.7% of Canada's household population (non-homeless) over 15 years old, reported the use of opioids during the prior year and about 10% of these reported getting into trouble with opioid use, due to reasons such as unmet emotional or mental health needs, unattached or living alone, and previous substance abuse history (Carrière et al, 2022). In 2019, this figure increased to 14% or 4.4 million Canadians with 6% stating troubled use (Canadian Alcohol and Drugs Survey, 2021).

Driving under the influence of opioids (DUIO) is fast becoming a concern due to rising opioid abuse. Prior to the current opioid epidemic, few concerns existed over driving by "patients under stable long-term opioid therapy for nonmalignant pain" (Kress & Kraft, 2004, p. 143). They were encouraged to carefully decide for themselves in conjunction with their physician and pharmacist recommendations. However, two decades later, from 2017 to 2019, for 66 cases of impaired driving-related accident investigations in Ontario, the blood concentrations of carfentanil (a highly potent and dangerous opioid with no medical use) ranged from 0.04 to 2.1 ng/mL (Wallage et al, 2022). These drivers in Ontario, where 3.1% of adults have received DIUO citations, exhibited a range of behaviours such as actions that concerned observers, becoming unconscious, and requiring overdose treatment (Wickens et al, 2018). A survey of senior high school students in Atlantic Canada found 4.3% to have received a recent DUIO charge and 14% of those that were prescription opioid users also received a DUIO (Asbridge et al, 2015).

People initially take opioids for pain relief, but enjoy the euphoric high and inability

to feel pain that comes along with the initial relief. As a result of the need to deaden physical and mental pain, or just feel good for longer, opioid use rapidly becomes addictive in many people. Short-term side effects can include: drowsiness, constipation, impotence (men), nausea, vomiting, difficulty breathing, headaches, dizziness and confusion. Long-term side effects can include: tolerance, dependence, liver damage, infertility (women), and life-threatening withdrawal symptoms in babies born to mothers taking opioids. Eventual substance use disorder may result, where terminating use brings withdrawal symptoms such as chills, sweats, nausea, diarrhea, insomnia, body or headaches, nervousness, agitation, and irritability.

Inevitably a deadly overdose can result. Even stopping use for a few days can reduce tolerance and so starting again with the same dosage can trigger an overdose. Opioids exert depressive influence over the respiratory centres of the brain and so an overdose can suppress breathing. When breathing slows or weakens the heart and brain are deprived of oxygen, leading to unconsciousness and death. Other symptoms and signs of opioid overdose can include: difficulty walking talking or staying awake, drowsiness, dizziness, confusion, very small eye pupils, blue or grey lips or nails, cold or clammy skin, and making choking, gurgling or snoring sounds with failure to wake up when shouted at or shaken.

If you suspect an overdose, call for emergency assistance (911), give naloxone (available without prescription, safe for all ages), monitor vital signs, especially breathing, and perform AR or CPR, when necessary. Given by nose spray or intramuscular injection, naloxone acts fast to reverse the effect of opioids, but it only lasts for 20-90 minutes. When opioid blood concentration is high, then a second treatment is needed as potency will wear off before emergency services arrive to remote locations.

Other Drugs

> *I remember conducting adventure therapy with a corporate CEO who had a drug habit. He was a big risk taker, drove racing cars, flew planes, gambled, and tried all kinds of narcotics and hallucinogens. We were working on substituting risk taking adventures and discussing the holes he was trying to fill with these risky endeavours, when he died piloting his aircraft under the influence.* —Story related by a peer therapist, circa 2000.

Driving under the influence of drugs (DUID) is globally estimated at 5–35% and this only considers drivers using prescribed medications and does not include those using illicit or illegal drugs that would raise the percentage of DUID (Verster et al, 2009). For example, users of prescription Z-medications, such as zolpidem, zopiclone, and zaleplon (valuable sleep inducers), have double the risk of motor vehicle collisions compared with non Z-drug users (Gunja, 2013).

Conducted every two years, the Canadian Alcohol and Drugs Survey (CADS) is a measure of self-reported use by Canadians over the age of 15. For example, while it shows a remarkable 15 percentage point decrease in alcohol consumption for teenagers from 2015 to 2019, it also shows a comparable 15 percentage point increase in cannabis consumption for young adults during that same four year period. The overall use of psychoactive pharmaceuticals (prescribed pain relievers, stimulants, sedatives, etc.) in 2019 by Canadians was steady at 23% of the population (7 million people, 60% female). Of these users prescribed these drugs, 7% or 493,000 reported problematic use for the purposes of improving mood, getting high, feeling numb, coping with situational stress and dealing with life's difficulties. Stimulant use was 2% (660,000) with 37% of these (244,000) noting problematic use, while 11% (3.3 million) used sedatives and 3% of these (85,000) were problematic (Canadian Alcohol and Drugs Survey, 2021).

Separate from opioids, the use of at least one illicit or illegal drug was 3% or 1.1 million Canadians. They further reported use of

cocaine (2% or 605,000), hallucinogens (2% or 587,000), ecstasy (1% or 353,000), and methamphetamines (0.5% or 142,000). At least one harmful effect, such as on physical or mental health, friendships, social or home life, finances, marriage, work, study, job opportunities, and legal, learning or housing problems, were noted by 5% or 1.1 million Canadians. Reported harm was higher among 17% or 1 million Canadians who also disclosed the use of cannabis, any use of illegal drugs, or problematic use of psychoactive pharmaceuticals (Canadian Alcohol and Drugs Survey, 2021).

Effects of other illicit drugs vary according to the drug. However, some generalizations are possible based on four categories of illicit drugs grouped according to major effects (Houck & Seigel, 2015).

1. Stimulants increase the activity of the nervous system, activate the sympathetic "fight or flight" response, thus exciting the body with pleasure and vigour. Common stimulants (uppers) include amphetamines, caffeine, cocaine (coke/crack), MDMA (ecstasy/molly), methamphetamine (meth/speed), and nicotine.

2. Depressants work in opposition to stimulation by lowering electrical impulse transmission in the nervous system and generally calming body arousal through parasympathetic "rest and digest" responses that can lead to euphoric feelings. Common depressants (downers) include alcohol (booze), barbiturates, benzodiazepines (benzos/valium/xanax/sleeping pills), and cannabis (weed/grass/pot).

3. Narcotics generally reduce or alleviate pain symptoms (analgesic) by numbing the nervous system or paralyzing the body. Common narcotics (not meant as a synonym for controlled, scheduled, or illegal drugs) include carfentanil, codeine, demerol (pethidine), fentanyl, heroin, morphine, laudanum (alcohol and opiates), opium, and other opioids.

4. Hallucinogens alter states of consciousness and change feeling, thinking, behaving, and perceiving reality, by interfering with normal nerve transmissions. Common hallucinogens (psychedelic or dissociative) include LSD (lysergic acid diethylamide), mescaline (peyote), PCP (phenylcyclohexyl piperidine/angel dust), and psilocybin found in magic mushrooms.

All of these can be addictive in some personalities and users may suffer withdrawal symptoms leading to needing another dose to alleviate the accompanying "crash" of cessation. The body and brain can build a tolerance to these drugs and so greater doses are needed to get the same results. Combining two or more drugs is a common tactic for suicides (alcohol and sleeping pills), cause of overdoses (opioids and methamphetamines) or reason for motor vehicle accidents (cannabis and alcohol).

Humans under the influence of a drug may exhibit a wide range of signs. Stimulants users appear highly alert, aware or awake, without the need to sleep, eat or drink. They are over-aroused, often with elevated heart rates and blood pressures. They are motivated to produce results and endure great hardships.

Depressants cause users to appear relaxed, calm or even sleepy. Their speech may be slurred, their eye movements can seem uncoordinated, and their muscle movements might be uncontrollable. They can display cognitive confusion, joyful euphoria, or detachment from their surroundings and immediate realities. Decreases in respiratory tempo, heart rate, and blood pressure will likely be noticeable.

Narcotics users appear dulled, drowsy or depressed in some cases. In others, they may seem euphoric. Early narcotic usage can bring nausea and vomiting, while later use may develop pain insensitivity, leading to greater physical injuries from emboldened accidents. However, the biggest concern with narcotics is a reduction in respiration, leading to death from lack of oxygen to the brain or other organs. Users may easily become surprisingly

breathless when performing simple exercise.

Hallucinogens cause users to see or hear things that aren't really there (visual/auditory alterations or hallucinations) and resultantly change their mood, perceptions, feelings, thoughts, and behaviors, perhaps operating under a sense of delusion. They report mystical experiences, spiritual connectivity, and dream-like circumstances that indicate their detachment from the reality at that moment or disassociation from their minds or bodies. Unchecked, this can lead to a delirious state with extreme confusion and uncontrollable actions. For long-term use, hallucinogen-induced psychosis may transition to schizophrenia (Murrie et al, 2020).

Any drugs that impact the central nervous system are likely to interact with alcohol and cannabis. This is especially true for depressants (same category as alcohol and cannabis). Avoid mixing alcohol and/or cannabis with sleeping pills, tranquilizers, muscle relaxants, benzodiazepines, and certain kinds of allergy, cold, pain, or anti-seizure medications as these in combination will worsen depressive actions.

Studies have shown a higher risk of drug overdose and death due to cold (Goedel et al, 2019) and hot (Henderson et al, 2022) temperature extremes, such as those conditions found in outdoor activities. Between 2008 and 2017, 13% of boating fatalities had evidence of drug use, while 20% of victims had drugs in their bloodstream during post-mortem toxicological analysis (Drowning Prevention Research Centre, 2021). Although no additional research could be found on drugs and outdoor activities, any consumption of these is clearly contraindicated in outdoor learning, despite adventure therapy having long been proven to be an efficacious treatment for substance abuse disorder (Russell et al, 2020).

Personal Medications

Effective outdoor programs normally collect medical histories along with legal contracts (waivers, risk assumptions, etc.) from participants prior to their involvement. The confidential medical history form should include a question about (and ample space for listing) medications with frequencies and doses being taken by a participant. Scanning these forms before a program and learning the treatment and side effects of these disclosed medications should help your program to prepare for possible problems. As noted earlier, medication interactions with other drugs, cannabis, and alcohol can and frequently does result in health complications. One example is possible exaggeration of high altitude sickness.

Recommendations

> *We used to stop for a beer or two on the drive home! You mean we can't even do that anymore? Where's the fun in going outdoors now!?* —Students who once drove each other in small group minivans to and from trailheads for university trips in the 1980s.

The party attitude of the past has diminished in the educational sector of outdoor learning and was never part of the therapeutic sector. However, it may still permeate some of the recreational and commercial tourism operations. Free spirits, attracted to working outdoors, brought with them a comfort level with alcohol, cannabis, and other drugs. After all, with a group of adult paying clients, why not allow them to use substances as they like? The difficulty comes in knowing where to draw the line.

Consider white water paddling companies who feel the need to secure a liquor license just to keep pace with their competitors. While some might restrict alcohol consumption to campsites and other off-river locations, another might allow drinking on the calmer portions of the river. It's only a matter of time before someone says "put your drink away for the rapids, so it doesn't dilute with water, but keep it handy for everywhere else!" What about wine, beer, and cannabis sampling tours by bicycle or skis?

Based on information in this article, practitioners are fooling ourselves if we think all outdoor learning participants are not under any influence. We can expect similar percentages of Canadians driving under these

influences to show up for our programs. Other than instituting rules, what can we do about this?

First, the author recommends no use of these potentially impairing substances in programs for staff or participants. If you are considering consuming legal substances like alcohol or cannabis around the campfire or on the road while travelling, do not do so and definitely discourage others from doing so. In the event of accidents, you can be sued and your insurance provider might try to wriggle out of your policy coverage. If in doubt about this point, please discuss it with your lawyer and insurance broker.

Second, staff consumption should follow the guidelines established by other professions. Like outdoor practitioners, the Canadian Armed Forces (CAF) are also called on to do dangerous and serious work, which can lead to the deaths of their participants. Following legalization, the CAF warranted that service members may use cannabis in accordance with the law, but must stop using it eight hours before duty, 24 hours before operating a weapon, vehicle, or other machine, and a month before conducting specialized activities like high altitude parachuting or deep underwater diving (Paperny, 2018). Also prohibited internationally, its use came with the same physical health concerns as smoking tobacco. Other than criminal misconduct concerns, CAF policies regarding alcohol consumption were conspicuously absent.

Alternatively, the Royal Canadian Mounted Police (RCMP) dictated that their officers must not use non-medical cannabis within 28 days of reporting for operational work in (safety-sensitive) public settings. This waiting period effectively prohibits any cannabis use at all, but may change as more evidence is researched over time (Burke, 2018). The policy on alcohol consumption is less stringent, since no alcohol clearance duration is mentioned. "All RCMP employees must be fit for duty when reporting for work, which includes not being impaired by alcohol or drugs. The policy reflects the duty of care the RCMP has for its members and the communities it serves" (Royal Canadian Mounted Police, 2018, p.1).

Employment and Social Development Canada (2022) inconclusively discusses impairment in the workplace. Other than avoiding the obvious dangers of going to work while impaired, their policy states employees and their employer have a role to play in workplace health and safety. They encourage employees to voluntarily disclose their impairments and report co-workers who appear impaired. Similarly, employers have a responsibility to develop and enforce policies regarding impairment. Whichever approach you choose to follow for your staff, be sure to read the Occupational Health and Safety statutes for your province and the nation, before checking further with your lawyer. To begin, Anderson (n.d.) offers a series of six things employers should know about cannabis at work.

Third, if participants are discovered to be using potentially impairing substances (and you have clearly established a rule that speaks against such use), then you have clear evidence of an infraction and the expressed consequences of that rule should be applied. Participant consequences may range from loss of privileges to program expulsion without a refund (depending on your rules). Remember, stronger consequences usually ensure greater compliance and a rule without consequences is merely a weak guideline. Again, confer with your lawyer when drafting such rules and consequences.

Fourth, and much trickier, if you suspect someone is under the influence, but have no clear evidence of use or impairment, and contentious drug testing is likely not permissible, then to avoid a provincial or federal complaint, alternatives should be considered. "The Canadian Human Rights Commission (CHRC) recommends that employers, wherever possible, rely on observation, supervision and frequent face-to-face conversations as a way to recognize impairment" (Employment and Social Development Canada, 2022, p. 1). For participants, a similar approach seems prudent, but be certain to consult your lawyer.

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After his tenure as a university professor of adventurous and environmental outdoor learning in Ontario, Simon Priest was a dean, provost, vice-chancellor, senior vice president, president, commissioner, and advisor to a Minister of Education. He has received numerous awards and accepted over 30 visiting scholar positions around the world in outdoor learning.


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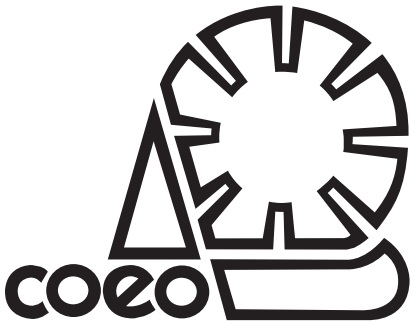

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