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DEPARTMENT OF PEDAGOGICAL CURRICULAR AND
PROFESSIONAL STUDIES

LEARNING WITH FIRE, WATER AND SUN A POST-QUALITATIVE INQUIRY INTO SWEDISH FRILUFTSLIV EDUCATION

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Examiner:	Helena Pedersen

Abstract

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- Aim:** The aim of this study was to empirically investigate the emerging material-discursive entanglements between humans and more-than-humans within Swedish friluftsliv education, and argue for the ways in which these create didactical and pedagogical opportunities for teachers and students to contribute to a more sustainable world.
- Theory:** The research was theoretically framed within a new materialist ontology focusing on the entanglement between matter and meaning and the configuration of phenomena as material-discursive (Barad, 2007). This was put in conversation with educational perspectives such as Dewey's (1938/2015) theory of experiential learning, Marton's (2015) variation theory, and Wals' (2012) concept of post-normal learning.
- Method:** A post-qualitative approach was used to experimentally and participatory create empirical material through a school visit to a friluftsliv course at a Swedish folk high school. The material was analysed by means of tracing, diffractive, and rhythm analysis.
- Results:** The study empirically showed how Swedish friluftsliv education, by being set outdoors in an environment rich in material-discursive entanglements, can create a space for learning with the more-than-human world. By allowing students to experience these entanglements in doing and not just talking about, it can enable an embodied understanding of the complex relations between humans and more-than-humans. This can in turn challenge the human/nature divide and inspire to a more respectful behaviour towards the "others" of the world, as well as a humble view of what it means to be human.

Foreword

There are many actors involved in the assemblages that make a master thesis possible, and to cover them all in a few lines of text would be impossible. However, there are some I want to mention.

First of all, I want to thank the students and teachers of the school that I visited for welcoming me into their world with open arms and an open mind. Without you, this thesis would not have existed.

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Chapter 1. Introduction

“To think that the world is ours to ruin or to save are two expressions of the same hubris.”

(Cohen & Duckert, 2015, p. 5)

When I first saw this quote, something stirred in me. The nagging notion that there is something out of tune with the way I was brought up to see the world began to materialize. Questions started glowing. Perhaps there are other ways to be human? What if I am only one actor among many defining the events of my life? Moments and memories began to seek contact, circling around a common centre. There was that thing I read about the Sami people not singing *about* a mountain, a lake or a person, but simply *singing* the mountain, the lake or the loved one. There was the communication course where we worked with Martin Buber’s primary word *I-thou* merging the speaker and the listener into one. There was the sepia coloured autumn afternoon in the forest *in between* rains when I had a strange feeling of belonging yet being different. And maybe also the endless hours of singing just for the sake of *feeling* the tone vibrate through my body. In the meeting with thinkers of *new materialism*, I was finally offered words to connect the dots. It had all been about transgressing the illusion of separate spheres, one for “me” and one for the “others”, and rediscover the entanglement of bodies that had always already been there.

We live in an epoch that many call the Anthropocene, a time when humans, *the anthropos*, are making their marks in the very rocks of the earth (Ellis, 2018). Although human endeavours have brought fruits of development and increased living standards for a significant amount of people, a growing body of research has shown that they are also destructive in the long run. Voices have been raised for a transition to a more sustainable lifestyle as a way of securing favourable conditions for all present and future inhabitants of the planet (Sörlin, 2017). The question is, however, a transition to *what*? What is a sustainable lifestyle? In the initial quote, there is a hint that it is not about saving the world instead of ruining it, but about a deep change in the way we place ourselves in the world; a transition of what it means to be human (Cohen & Duckert, 2015). This is what new materialism offers with its focus on relations between matter and meaning and the persistent belief that the material world is an active actor in all our endeavours. It even points out that everyone of us is always already matter and meaning entangled in a messy mix of dreams, microbes, desires, tissue and neurotransmitters (Barad, 2007; Bennett, 2010). This way of being *of* the world instead of outside or above it has made a deep impact on me, and as a teacher, I naturally turn to education for influencing others in this direction. Having grown up in the Swedish countryside, I also find the obvious starting point outside of human-built walls. In recent decades, there has been a growing interest in the potential of outdoor education for contributing to a more entangled and less anthropocentric worldview. The outdoor setting has been argued to enable students to encounter the materiality of the world and learn *with* it (Quay, 2016; Weldemariam, 2020;

Mannion, 2020; Ross, 2020). From a new materialist perspective, this would be conceptualized as *the material* (matter in the shape of trees, wind, snow or a canoe) meeting *the discursive* (human meaning-making as thinking, talking or feeling) creating the *material-discursive* entanglements that make up our world (Barad, 2007).

From this point of departure, my research seeks to unpack some of the ways in which Swedish friluftsliv¹ education can be seen as material-discursive practices and discuss how that can make a significant contribution to sustainability education. I will investigate what material-discursive entanglements are unfolding in a group of friluftsliv students and present them in vignettes where three themes are explored. I will then put the findings in conversation with new materialism and its implications for education. The emerging interconnections between humans and more-than-humans will aid me with their affordance to inspire teachers and students, shaping possibilities to learn with the more-than-human. In that way I will bring forth the voices of the “others”, silenced by prevailing notions of human supremacy, hopefully inspiring people to a more harmonious way of being with the world.

1.1 Background

In this section, I will present some areas relevant to this research project: the human-nature relationship, education for sustainability, outdoor education and friluftsliv. This will deepen the understanding of the starting point leading up to the aim of the study.

1.1.1 The human-nature relationship

The question of how we humans should relate to nature and more-than-human “others” has been bothering people as far back as there are written sources. Different cultures have had different ways of relating to nature and its inhabitants; they have been everything from worshipped, copied and praised to feared and controlled (Sörlin, 1991). Over the last few centuries, the most prevalent relationship has been one of separation, dominance and control. However, predominantly in traditional and Indigenous societies, a more entangled relationship to nature can be found where everything is considered a whole and no equivalent to the word nature even exists (Berkes, 2018; Thurfjell, 2020).

Last year, The United Nations Environmental Programme released a report called “Making peace with nature”, in which they stated that human knowledge, ingenuity, technology and cooperation need to be “...re-deployed from transforming nature to transforming humankind’s relationship with nature” (UNEP, 2021, p. 13). This report joined a line of international policy documents that ever since

¹ In this text, the Swedish term *friluftsliv* is used to denote outdoor activities and recreation. It is a culturally relevant term in the Swedish context and occurs without translation in English texts (Backman, 2018). In contrast to *sports*, *friluftsliv* generally refers to non-competitive activities, even though there are overlaps between the two. The concept will be further developed in section 1.1.3.

environmental issues were put on the global agenda in the 1970's have been concerned about the deteriorating state of the planet. These documents have all been produced within the so called "West" (Kahn, 2010) and their main message has been that the current developmental path is creating poor conditions for many of the earth's inhabitants and that an urgent transformation is needed. They have stressed the need for humanity to find creative solutions that do not destroy the earth while at the same time allowing millions of humans to escape poverty and enjoy the fruits of development (WCED, 1987; IPCC, 2013; WWF, 2016; IPBES, 2019).

The paradigm in which these reports were produced has been criticized for being too anthropocentric and therefore acting as a driver of unsustainable systems in which solutions can only be unsustainable however "green" they may seem (Kahn, 2010; Carpentier et al., 2021; Ross, 2020; Berkes, 2018). The separation of nature and culture upon which this paradigm is resting can be traced all the way back to ancient Greece, but became the dominant view in the West during the Enlightenment. Today, the interconnected world we live in has paved the way for this dualistic worldview to become global (Kahn, 2010). The lifestyle embedded in this paradigm has been criticized for resting on unequal displacement of environmental loads, negatively affecting those with least power and influence (Hornborg, 2009), including more-than-human animals (Pedersen, 2019).

Humans are storytelling creatures and the narratives that surround us mirror and shape how we experience the world (Gee, 2018). An instrumental narrative about nature has been claimed to enhance our detached and dominant position towards nature causing environmental crisis by allowing us to utilize it as a commodity (Gough, 2014). Likewise, Bennett (2010) has argued that "... the image of dead or thoroughly instrumentalized matter feeds human hubris and our earth-destroying fantasies of conquest and consumption" (p. ix), and has advocated that we start paying attention to the vibrancy of the material world in order to be humbler to it. In recent decades, the so called *posthuman turn*, in which new materialism can be placed as a certain conceptual perspective, has advocated a shift away from a human-centred and instrumental worldview towards an acknowledgement of the entangled and complex reality of matter and meaning (Barad, 2007). The aim is to open up for a wider interpretation of who and what is capable of "knowing" and see that humans are but one actor among others in an ever changing web of agency (Ulmer, 2017). In this line of thinking, there can be no detachment from nature since we are always already nature. The challenge is rather to reconnect with a relational worldview in order to reach beyond dualisms such as nature/culture, human/nonhuman, alive/dead, and see that each one of them "...stops short of understanding humans and nonhumans in their mutual constitution, as integral parts of the universe – not as beings *in* the universe" (Barad, 2007, p. 169).

1.1.2 Education for sustainability

The power of learning is reflected in everything from the trial and error of a child struggling to walk, to global initiatives such as the UN Decade of Education (UNESCO, 2022b). Learning is at the heart of every transformation as it enables us to adapt to change and find ways to make use of new information and tools (Kahn, 2010). The educational perspective called Education for Sustainable Development (ESD) has been developed as an answer to the declining state of the earth, emphasizing the important role for education in the needed transformation. Features such as democratic processes, critical thinking, justice, equality and development of competencies and skills are cornerstones in this tradition (UNESCO, 2022a). The concept of ESD itself has, however, been criticized for resting on the assumption that education should be *for* something and that there is a presumed consensus about what sustainable development stands for and that it is something inherently good (Jickling, 1994). It has also been criticized for being too prescriptive (Franck & Osbeck, 2018; Ideland & Malmberg, 2015), and for reproducing existing power relations between the West and other parts of the world as well as towards nature and its inhabitants (Kahn, 2010).

One perspective on sustainability education that can be seen as an answer to this critique is the concept of post-normal learning with its focus on dealing with complexity through dialogue and heterogeneity rather than prescribing specific solutions (Wals, 2012). Another perspective departs in the power of language, urging sustainability educators to question and deconstruct the narratives that by separating humans from nature are making possible the dominance and destruction that is taking place within the Western industrial paradigm. This can be done by using language that does not divide or exclude, and by focusing on the “others” that inhabit the world to see if our stories make them silent (Gough, 2014). An education that is set outdoors has been argued to be especially suitable for this kind of critical endeavour since it brings culture and place together in lived experience instead of students just reading about the connections in subject matters such as geography or biology (Quay, 2016).

1.1.3 Outdoor education and friluftsliv

Outdoor education is an expression of the idea that teaching and learning benefit from being conducted in outdoor settings such as parks, farms, nature parks or natural landscapes. It is not a specific method, but a collection of different pedagogical practices with the common feature of being conducted outdoors. This means that outdoor education can denote anything from taking a specific subject matter, such as maths or biology, and moving it out of the indoor classroom, to the outdoors being a part of the subject matter itself, as in friluftsliv education (Remmen & Iversen, 2022).

Sweden has a long tradition of outdoor recreation, friluftsliv, and since the 20th century there has been a steady increase in interest. Some of the prerequisites mentioned for this development are favourable

conditions regarding space and climate, strong networks of organisations, and structural policy aspects such as the Right of Public Access (the right for the public to roam free in nature regardless of who owns the land) (McCullogh et al., 2018; Sandell & Sörlin, 2008). Traditionally, friluftsliv has been regarded important due to its positive impacts on public health and the fostering of national belonging, as well as its ability to enhance positive attitudes towards nature (Sandell & Sörlin, 2008). Lately, however, the positive image of friluftsliv has been problematized due to increasing environmental impact and challenges related to accessibility for people with different geographical, socio-economic and cultural backgrounds. The increase in environmental impact has been connected both to a general increase of people being outdoors leading to problems with trampling, water pollution and wildlife disturbance, but also to an increase in extreme friluftsliv activities demanding long journeys and specialized equipment (McCullogh et al., 2018). The challenges related to cultural and geographical conditions has been connected to an increase in migrants with different cultural relations to nature (Backman, 2018), but also to the fact that dominant discourses of friluftsliv include going to remote places (Backman, 2011b), which can be demanding for people living in urban areas with scarce socio-economic resources.

Friluftsliv is a part of the Swedish national curricula from primary to upper secondary school, which means that virtually all children in Sweden come in contact with friluftsliv at some point. It is part of the subject Physical Education and Health (PEH) and central features include safety, navigating using maps, rights and obligations in nature, outdoor activities in different seasons, and knowledge about the Right of Public Access (Skolverket, 2022). In addition to this, friluftsliv courses are offered in a number of other educational settings such as folk high schools, study associations, interest organisations and private companies (Sveriges folkhögskolor, 2022b; Studieförbundet, 2022; Keystone Education Group, 2022). Research on Swedish friluftsliv education is scarce, but some recent studies have shown that there are challenges related to its subordination to sports, perceived obstacles due to geographical location of the school and students' prior experiences and lack of time and curriculum guidance (Backman 2008, 2011a, 2011b; Lundvall & Maivorsdotter, 2021; Sandlen, 2015; Henriksson & Karlsson, 2017). Further, Swedish friluftsliv education have been found to rest on a division between humans and nature with a preference for carrying out extreme activities far from the school (Backman, 2008; Klaar & Öhman, 2014; Harju et al., 2021). However, there are some examples of research on both outdoor and friluftsliv education showing that it can contribute to a more entangled worldview by focusing on places, silent stories, and alternative pedagogies with more-than-humans as co-teachers (Mikaels, 2018; Morse, 2021; Jukes & Reeves, 2020; Mannion, 2020).

1.2 Aim and research question

This research project departs in the need for a shift from a worldview where active humans are managing a passive nature to a more entangled and holistic way of being *with* the world. By acknowledging the entanglements with an agentic more-than-human world, incentives for behaving less destructively and more respectfully towards it can be created. To me, this constitutes long-term sustainability and an ethical way of being human that is worth striving for. It also departs in the need for more research on how Swedish friluftsliv education can take part in bringing about this shift. I believe that the educational system has the power and the responsibility to raise students' awareness about the entanglements between humans and more-than-humans, and to pave the way for a shift in students' mental models about the world. In this endeavour, friluftsliv education has an important role to play as a subject matter where a central feature is direct encounters with the more-than-human world.

To contribute to the above, the purpose of this study is to empirically investigate the emerging material-discursive entanglements between humans and more-than-humans within Swedish friluftsliv education, and argue for the ways in which these create didactical and pedagogical opportunities for teachers and students to contribute to a more sustainable world. To fulfil this purpose, I will be guided by the following key research question:

- *What material-discursive entanglements are unfolding in Swedish friluftsliv education?*

To address this question, the study is theoretically framed within the new materialist perspective and guided by a post-qualitative research inquiry approach. New materialism focuses on the relations between meaning and matter in which “[t]he material is not a passive recipient of meaning, situated outside ... discursive struggles, but the material can actively engage with these struggles...” (Carpentier et al., 2021, p. 2). The ability to affect, *agency*, is distributed between all actors within these relations and so is responsibility, which means that individual entities can neither be held totally responsible for a given event nor escape responsibility altogether. Being an ethically responsible human in a new materialist sense thus means being aware of the networks of relations we enter and how their agency might affect other bodies. This stands in sharp contrast to conventional materialism in which matter is seen as passive or dead and as a resource for humans to utilize as we see fit (Bennett, 2010). The methodological implications for research within this framework is the focus on an experimental approach and an honest recognition of not knowing what will become or which actors will be involved. This is called *post-qualitative* inquiry since it aims to go beyond the strong focus on human structures such as language or interpretation in qualitative research (St. Pierre, 2018; Gunnarsson & Bodén, 2021). Post-qualitative inquiry places human-matter relations in the centre of understanding and acknowledges that a phenomenon cannot be studied in isolation (Ulmer, 2017). Hence, in a post-qualitative study, the

task for the researcher is to tune in to more-than-human actors, as well as human ones, and pay attention to what “voices” they might have and how they form connections that come to matter in an event (Gunnarsson & Bodén, 2021).

From the focus on relations and entanglement in both new materialism and post-qualitative inquiry follows the paradox that they cannot really be called a “theory” and a “methodology”. They are not conceptual models that can be applied to a world that is “out there”, but rather ontological standpoints, i.e. a way of life (St. Pierre, 2018; Gunnarsson & Bodén, 2021; Latour, 2005). The relation between matter and meaning, the material-discursive quality of the world, also means that being and knowing cannot be separated from each other or from ethics, which results in an *ethico-onto-epistemological* reality that is always already there (Barad, 2007). This implies difficulties when writing an academic thesis where chapters are designated to different parts of the project such as theory, method, data, analysis and results as if they could be accounted for in isolation, while in a new materialist project they cannot. I will nonetheless make an attempt to account for a messy new materialist research experience in clear and stringent academic text, while at the same time being true to both perspectives. The result may well be an embodiment of the complex reality that I deeply believe we have to learn how to bear.

1.3 Structure of the text

The first chapter has hopefully given the reader an idea of what this research project is about and why. Chapter two will provide a thorough account of the new materialist worldview, in other words the framework for the research. This will be followed by a chapter presenting recent research on outdoor education internationally and on friluftsliv education in Sweden. This is a reversed order of these chapters compared to what is customary for an academic thesis, where the review of previous literature often occurs right after the introduction, leading up to a gap in the field of knowledge that the research project aims to fill by applying a theory and a certain method to a stated research question. However, considering that my “theory” is my worldview, I believe it important to give the reader a thorough account for that as soon as possible in order to make the rest of the text comprehensible. This will also make it easier for me to stay true to the language of new materialism throughout the remaining chapters and avoid recreating a narrative that I am attempting to change. Furthermore, the research review was conducted *after* the reading of the new materialist thinkers, hence influenced by their worldview, which makes it more natural to place the review after the theoretical framework in the text.

Chapter four will provide a more in-depth account of post-qualitative inquiry as a way of conducting research within a new materialist framework. It will be followed by an account of how the study was set up: where I went, what I did, what empirical material was created, how I analysed the material, and my experiences as a researcher-human-student throughout this journey.

Chapter five will be devoted to presenting the findings of what material-discursive entanglements were unfolding during the study. Three different themes from a visit to a group of friluftsliv students and their teachers will be presented and analysed.

In chapter six, the findings will be put in conversation with that which has been presented in chapters two, three and four. This will be an exploration of the possibilities of Swedish friluftsliv education to be crucial in the transition to a more sustainable world in terms of raising awareness about and learning with the entanglements between humans and more-than-humans.

Finally, chapter seven will provide a concluding summary of the results as well as some suggestions about where to go from here.

Chapter 2. Theoretical framework

In this chapter, I will account for the new materialist thinkers that have influenced me the most during this project. I will also elaborate on my understanding of their thoughts and how I view new materialism in relation to education and learning, as well as to outdoor and friluftsliv education. For the reader who has not yet encountered new materialism, this chapter will contain many words and concepts that might be confusing or difficult to grasp. I ask, however, that you bear with me to the end of the chapter when some examples have hopefully made it clearer.

2.1 Three influential standpoints

Agential realism, *vital materialism* and *actor-network-theory* are three lines of thinking that can be viewed as part of the new materialist movement, and they have all been influential to me when it comes to making sense of the world. In this first section, I will outline these conceptual standpoints on the basis of three major texts. Even though the texts are some years old, I will use the present tense to reflect the fact that I have recently read and developed my understanding of them.

2.1.1 Agential realism

In her book *Meeting the universe halfway – quantum physics and the entanglement of matter and meaning*, Karen Barad presents the theory of *agential realism* departing from the lessons of Niels Bohr's quantum physics. The main message is that explanations of the fixed nature of physical objects and the separation of knower/known or observer/observed are no longer valid. Repeated results from experiments of quantum mechanical problems have shown that the properties of an object changes in accordance with the constitution of the measuring device, and the idea of bounded entities with inherent properties and behaviours will have to be abandoned (Barad, 2007).

In agential realism, the basic unity of the world is what Barad (2007), just like Niels Bohr, calls *phenomena*, which denotes "...particular instances of wholeness" (p. 119). A phenomenon is both material and discursive, constituted in the relation between the material component(-s) and the meaning-making practices through which it comes to be. This *material-discursive* practice is described with the neologism *intra-action*, which captures the fact that the "...distinct agencies do not precede, but rather emerge through, their intra-action" (Barad, 2007, p. 33). In other words, a phenomenon does not preexist but *comes to be* in the intra-action that constitutes its boundaries and properties. These perceived boundaries and properties are the results of so called *agential cuts*, who within the intra-actions determine the inclusion of what comes to matter and the exclusion of that which do not come to matter; "...different cuts enact different materialized becomings" (Barad, 2007, p. 361). These agential cuts leave marks on bodies that can be detected and that establish the constitution of the bodies as

phenomena. These iteratively reconfigured phenomena do not occupy a certain spot in space or time but are rather the defining agencies of *spacetime*, an emerging concept connecting multiple times and spaces as a perceived whole. Thus, phenomena are *spacetime* in its becoming (Barad, 2007).

Differences between phenomena are constituted by *diffraction*, a concept that denotes the patterning of meaningful differences. “*Diffraction is not merely about differences, and certainly not differences in any absolute sense, but about the entangled nature of differences that matter*” (Barad, 2007, p. 381). A diffractive methodology focuses on the material-discursive practices that produce differences that enable phenomena to be perceived as distinct subjects and objects (Barad, 2007).

From this emphasis on intra-action follows that the capacity to act, *agency*, is not something that can be attributed to an individual entity but rather to the intra-action itself, a movement in the conjoining of different human and more-than-human bodies. “Agency is not an attribute but the ongoing reconfigurations of the world” (Barad, 2007, p. 141). This means that agency has to be viewed as *distributed*, which has consequences for the concepts of *causality* and *responsibility*. Since agency is emergent and distributed, there are no pure causes and effects that can be placed on any individual entity. Instead, cause and effect are intertwined in the enactment that is differentiating them. A consequence of this is that responsibility cannot be thought of as belonging to “someone”, but is also distributed in the ongoing intra-action. This does not mean that there is no responsibility to be taken, but it is rather a question of *intra-acting responsibly*. For humans, this means first of all acknowledging the fact that we are not the sole source of agency but rather constantly intra-acting with multiple other bodies, human and more-than-human. We then need to pay attention to what is included *and* excluded from mattering in those intra-actions since we are responsible for the cuts we help making. Not because we chose them by means of free will, but because we are a part of the apparatus that enables them and as any component of an intra-action we have the capacity to resist and rework the agential cuts that are made (Barad, 2007).

The focus on relations that runs through agential realism makes it unfruitful to separate the concepts of being and knowing. If every practice is material-discursive, so is what we conventionally call knowledge. The implication is that knowledge cannot be thought of as something that belongs to a “knower” that “knows” something about something “known”. Rather, “...*practices of knowing are specific material engagements that participate in (re)configuring the world*” (Barad, 2007, p. 91). In other words, being and knowing can be seen as an embodied material-discursive practice, *being-knowing*. This, in connection with the notion of responsibility described above renders agential realism not so much a theory but an *ethico-onto-epistemology* (Barad, 2007).

Finally, the separation between nature and culture is contested, since humans and more-than-humans are considered “...integral parts of the universe” (Barad, 2007, p. 169). If these categories are used, the

intra-actions through which they are materially and discursively constituted should be followed rather than presupposing that they exist as ontological realities (Barad, 2007).

2.1.2 Vital materialism

In the book *Vibrant matter – A political ecology of things*, Jane Bennett draws on her “...irrational love of matter” (Bennett, 2010, p. 61) to advocate a vital materialism that does not separate humans that are alive and active from things that are dead and silent. Instead, she offers a worldview where all human and more-than-human bodies are *vital*, meaning that they have the capacity to change things and make a difference. This vitality, or *agency*, is emerging and distributed across the different bodies in connection with each other. Hence, it cannot be attributed to any individual body (Bennett, 2010).

The different bodies of the world are called *actants*. “...[A]n actant is a source of action that can be either human or nonhuman; it is that which has efficacy, can do things, has sufficient coherence to make a difference, produce effects, alter the course of events” (Bennett, 2010, p. viii). In other words, actants are the sources of action, without necessarily having intentions or purpose. Furthermore, actants never act alone and, as mentioned above, the agency or *efficacy* are constituted in the collection of actants and the connections they form. Causes and effects resonate with each other, and the impacts of adding new elements can never be grasped beforehand. Hence, responsibility is also distributed across the network of actants operating in a given situation. “This federation of actants is a creature ... to which the charge of blame will not quite stick” (Bennett, 2010, p. 28). Rather, responsibility is shared and no individual is capable of bearing full responsibility for the emerging effects. Instead, “...the ethical responsibility of an individual human now resides in one’s response to the assemblages in which one finds oneself participating: Do I attempt to extricate myself from assemblages whose trajectory is likely to do harm?” (Bennett, 2010, p. 37).

Vital materialism acknowledges that there is a difference between different entities such as humans and bones, but questions the tendency to describe those differences vertically with humans at the hierarchical top, or as a network with humans as the centre. Instead, the differences should be seen horizontally, enabling a sense of how everything is connected and interdependent.

The ethical aim becomes to distribute value more generously, to bodies as such. ... it can inspire a greater sense of the extent to which all bodies are kin in the sense of inextricably enmeshed in a dense network of relations. And in a knotted world of vibrant matter, to harm one section of the web may very well be to harm oneself. (Bennett, 2010, p. 13)

This is applicable within the human realm as well since “...the hierarchical logic of God-Man-Nature implied in a vitalism of soul easily transitions into a political image of a hierarchy of social classes or even civilizations” (Bennett, 2010, p. 84). A horizontal representation cannot be reached through

detachment, but by increasing the channels of communication between the actants of the world and by rejecting the separation of “...speaking subjects and mute objects” (Bennett, 2010, p. 108).

In summary, the intention for vital materialism is to enable “...a more subtle awareness of the complicated web of dissonant connections between bodies, and ... enable wiser interventions into that ecology” (Bennett, 2010, p. 4).

2.1.3 Actor-network-theory

In his book *Reassembling the Social – An introduction to Actor-Network-Theory*, Bruno Latour sets out to change the conceptual foundation of the social sciences from the presumption of detached forces such as society, norms, economy, capitalism or politics, to the acknowledgement that these are constituted and carried by networks of human and more-than-human actors who stabilize and destabilize social ties by acting upon each other. In this endeavour, the social is described “...not as a special domain, a specific realm, or a particular sort of thing, but only as a very peculiar movement of re-association and reassembling” (Latour, 2005, p. 7). In actor-network-theory, or ANT, the main objective is to follow the actors and see what networks they form. In this endeavour, it is important not to start with any predefined concepts or make conclusions about invisible forces causing things. “The task of defining and ordering the social should be left to the actors themselves” (Latour, 2005, p. 23).

Hence, ANT circles around *actors*, entities that participate in a flow of interactions affecting other actors. An actor does things to other actors and this doing can be traced. Actors are always in networks with other actors, hence the hyphenated *actor-network*, creating agency in the relations (Latour, 2005). This implies that *agency* is distributed and cannot be attributed to one single actor. “If an actor is said to be an actor-network, it is first of all to underline that it represents the major source of uncertainty about the origin of action” (Latour, 2005, p. 46). The concept of agency is understood not as an invisible force with uncertain origin, but as a doing. What is usually referred to as social forces are themselves made up by actions that can be traced, and the goal for ANT is to follow these traces to see what connections render them stable and durable. Doing that means that we will enter into a star-shaped reality of added connections and be “...led away from any given interaction to some *other places, other times, and other agencies* that appear to have molded them into shape” (Latour, 2005, p. 166).

In the tracing of an actor-network, the challenge is to keep the landscape flat and focus on the small circuits of connections that make up increasingly complex networks. “...action is possible only in a territory that has been opened up, flattened down, and cut down to size in a place where formats, structures, globalization, and totalities circulate inside tiny conduits” (Latour, 2005, p. 252). The ultimate task of an ANT analyst is to faithfully account for the actions performed by actors without leaping to conclusions on behalf of the actors. Rather, these intended leaps will have to be accounted

for by adding more circuits, more connections, and more actors (Latour, 2005). From this follows a flip in which "...society is the consequence of associations and not their cause" (Latour, 2005, p. 238).

Finally, ANT acknowledges that there are multiple sources of action in the world besides humans, and that more-than-humans must be given a major role if a true account of an action is to be reached. This implies a criticism towards the dualism between nature and society since "...they are both premature attempts to collect in two opposite assemblies the one common world" (Latour, 2005, p. 254). ANT strives for equalling out the asymmetries in power benefitting the Western world. In line with the central features of the theory, *power* "...is the final result of a process and not a reservoir, a stock, or a capital that will automatically provide an explanation. Power and domination have to be produced, made up, composed" (Latour, 2005, p. 64). In other words, power needs to be traced through the connections of human and more-than-human actors that are stabilizing its networks. By doing that it is possible to detect connections that are undesirable and rework them into a more non-restrictive actor-network. "As to emancipation, it does not mean 'freed from bonds' but *well-attached*" (Latour, 2005, p. 218).

Latour (2005) does not make any explicit claims of ANT being a new materialist worldview, and there are indeed some features that differentiates his work from Barad (2007) and Bennet (2010). Most notably, there is a lack of criticism towards anthropocentric discourses, and no explicit mentioning of sustainability. However, the strong focus on equating human and more-than-human actors implies a criticism towards anthropocentric dominance, which in my view is the very core of sustainability. This allows ANT to pass under the same umbrella as agential realism and vital materialism. I have therefore chosen to denote it as a new materialist endeavour.

2.2 My understanding of the texts

In this section, I will present and exemplify the result of my diffractive reading of Karen Barad, Jane Bennett and Bruno Latour's texts and how it has shaped my understanding of the world. A diffractive reading focuses on patterns of emergent and entangled differences. Hence, my understanding cannot be attributed to any one of the texts but must be understood as an intra-action of all three of them. I will nonetheless make conventional references where a clear connection to a specific text can be traced.

2.2.1 Material-discursive practices

A prominent feature of my understanding of the world is the focus on *relations* rather than on *things*. What we perceive as an object is always the configuration of ongoing movement involving different elements. In other words, a "thing" is the ongoing result of intra-action. Furthermore, it does not preexist the intra-action. To the extent that it existed before, it was as other intra-actions and not as predetermined things floating around "out there" waiting to enter into intra-action. There is no out there, only intra-

action enacting the agential cuts that determine what we perceive as boundaries and properties. In other words, the intra-action highlight differences that come to matter and make it possible for a phenomenon to be perceived as a whole, as “real”. This applies for all phenomena regardless of any distinctions between humans, more-than-humans, things or concepts. Whenever we think of some-“thing”, it is always a phenomenon that is both materialized in physical matter and given meaning through discursive practices, i.e. a *material-discursive practice* (Barad, 2007).

In addition to not having preexisting boundaries and properties, phenomena do not occupy a certain spot in the universe, neither do they exist at a given moment in a linear count of time with other moments preceding and following. On the contrary, they are spatially and temporally situated through the intra-action that configures them with connections spanning over both years and miles. Take for example *gravel*, a material-discursive phenomenon intra-acted by actors such as minerals, machines, human workers, distribution companies, and discourses of safety and accessibility. Space and time is reconfigured into *spacetime* when places where the mineral has been developed, reshaped and distributed meet millions of years reaching from when the mineral was sedimented in the crust to when it was gathered and broken down into small irregular pieces and then transported to meet the aforementioned places and become localized on a particular road as the spacetime-matter (Barad, 2007) gravel.

Viewing the world as ongoing intra-action and all phenomena as material-discursive practices also has implications for the concept of knowledge. When taking the material part of the expression seriously, “knowing” is not a purely intellectual endeavour in our minds, but something that is felt through some tangible matter as “being”. In this way, being and knowing are entangled and embodied, hence they become meaningful through the material actor-networks (Latour, 2005) that our body enters. I understand *learning* as the resulting marks on bodies by the boundary-making intra-actions in which they are a part, and by which (parts of) the world makes itself intelligible to them (Barad, 2007). As a result, learning is not a practice that can be traced to an institution called education, but a constant ongoing flow through the materialized connections of our lives. Let us consider an example. I come riding my bicycle on my ordinary route to work, when suddenly the asphalt on the road has been replaced with gravel for a planned repair. My front tyre slips as soon as it enters the gravel and I fall to the ground scratching my knee. This encounter with gravel and its intra-acted properties in the meeting with a rubber tyre, speed and the weight of my body will give me another kind of understanding of the phenomenon than would a theoretical class on the composition of different minerals. And it would certainly leave a (rather painful) mark on my body, hence become embodied being-knowing.

2.2.2 Being ethical - agency, causality and responsibility

In this relational worldview, *causality* and *responsibility* becomes distributed. There is no inherent agency in single actors creating cause and effect. And in the event that cause and effect are distinguishable, they neither preexist the material-discursive enactment of them, nor can they be controlled or anticipated since they are constantly reconfiguring. Causality is *emergent* in the intra-actions that agentially include or exclude possibilities (Barad, 2007). However, this is not to say that human actors cannot take responsibility for their actions, or that the weather is to blame for power blackouts (Bennett, 2010). Agency does not come from somewhere, but from everywhere (Latour, 2005). Actors (humans included) can never be fully in control nor fully controlled, but can be held accountable for the cuts that they are *part of* enacting. This shifts the focus from being responsible for particular effects to being responsible for, *respond to*, what assemblages we find ourselves in as well as what marks on bodies they possibly enact (Barad, 2007). Following that, we can also take responsibility for doing our best to discern and rework the intra-actions that stabilize connections leaving undesirable or destructive traces (Latour, 2005).

To return to the example of my hypothetical bicycle accident, I cannot solely blame the gravel manufacturer, the authorities, my decision to take the bike, increasing gas prices or the bike manufacturer. Instead, the cause of my accident is a result of the *emerging agency* of all these (and many more) actors in this particular material-discursive entanglement. Still, the decisions to enter into and stay in the bike-speed-human-asphalt-tyre assemblage remain my responsibility, and when approaching the gravel area, I could have paid more attention to how the assemblage was about to change when the actor gravel replaced the actor asphalt, and responded differently to it by for example slowing down.

2.2.3 Nature, culture and power

This *ethico-onto-epistemological* worldview rejects dichotomies such as human/more-than-human or nature/culture where phenomena are vertically different in a hierarchy of power and importance. Instead it advocates a horizontal, or flat, representation of acknowledged (but not valuated) differences (Bennett, 2010). This is not to say that a human and a table are essentially the same. But it is to claim that we are all (human and more-than-human bodies) *of* the world rather than *in* or *outside of* it. We are all taking part in the ongoing reconfiguring of an evolving material-discursive reality.

An important recognition is that while the notions of nature and culture are not fixed ontological categories, they do exist. But they too must be seen as emerging material-discursive practices (Barad, 2007), necessary in the narrative of human dominance and mastery over the earth that since the Enlightenment has been blooming in the West (Kahn, 2010). The connections upholding these concepts with their networks of inclusions and exclusions seem very strong and stable, but they are nonetheless

connections held stable by circuits of specific intra-actions, and as such can be destabilized (Latour, 2005).

The same is true for the concept of power, which is not a fixed entity but rather produced, i.e. manifested in traceable material reconfigurings that are made more or less stable through iterative intra-actions, again a material-discursive practice (Barad, 2007). This means that power can be traced through the many tiny circuits of materialized connections that constitute boundaries and exclusions that leave certain marks on certain bodies. It can also be destabilized by paying attention to what possibilities for inclusion are enacted and what exclusions that follow. In this, it is important not to make conclusions or explanations on behalf of the actors since that can become an exertion of power in itself (Latour, 2005). The political goal for new materialism is to make way for those actors that have been made silent by the vertical God-human-other chains of materialized power (Bennett, 2010), and instead embrace a horizontal representation of differences.

In the biking example used above, both gravel and asphalt can be seen as domesticated more-than-human actors (minerals and oil) that have been placed in a particular spot for the benefit of human transportation. The connections of power enabling human needs to be put first can be traced through tools, combustion engines, oil rigs, distribution companies, efficiency discourses, division of labour requiring transportation, the industrial revolution, public transportation agencies, etc. The emerging agency in this network has rendered both oil and minerals, as well as the original terrain on the spot where they end up, silent and utilized. These connections can be traced and disturbed by unpacking their workings and for example questioning the need for new roads or resisting the discourses of speed and efficiency. The power imbalance can also be addressed by paying attention to the voices of all the more-than-human actors being silenced when building roads, so that decisions can be made on the basis of a full picture of the impact.

In summary, the worldview that I have described in this section focuses on phenomena that are always both material and meaningful at the same time, *material-discursive*. The focus lies on relations and connections rather than bounded entities, which means that I view the world as a constantly changing network of actors that through their intra-actions create emerging agency. This agency, as well as causality and responsibility, is distributed across the network and cannot be attributed to one single actor. Learning in this worldview is both a material and discursive endeavour, meaning that it happens in both our minds and our bodies. Finally, any abstract concept can be traced and reworked through its connections between human and more-than-human actors.

2.3 Implications for education

In this section, I will account for how I understand education within the new materialist worldview, and how this understanding is useful in friluftsliv education. Since the three texts I have presented above do not develop any explicit theories about learning and education, I will bring up some educational theorists to help me put new materialism to work in an educational context. It is important to acknowledge that I will not use these educational theories as frameworks for the study, merely as a means of creating a network of connections between the new materialist worldview and education.

2.3.1 How to view education?

If being-knowing is considered a material-discursive practice, then that brings with it implications for learning and education. In a world that *is* intra-action, learning is everywhere and education needs to be attentive to not so much *if* learning takes place but *what* learning takes place. Further, a responsible education pays attention to and accounts for what assemblages are forming in its practices, what agential cuts determine the inclusion and exclusion of certain bodies, and whether the emerging agency leaves desirable marks on bodies or not.

This view on education emphasizes the creation of certain possibilities for embodied learning rather than attempting to control the learning itself, which resonates with Dewey's (1938/2015) theory of experiential learning. If we are to embody something, we have to experience it, and the role of the educational organization (understood as an actor-network of phenomena such as teachers, corridors, school yards, staff meetings, curricula, technological devices, class rooms, peer groups and parents) would then be to make possible rich intra-actions consisting of a multitude of actors where experiences are abundant. The aim of this would be to enable new marks on (learning) bodies to appear. This emphasis on experiences can further be connected to the notion of learning *from* something rather than *about* something (Franck, 2017), but if the world is kept flat and intra-actions are viewed horizontally, we might even talk about learning *with* something (Weldemariam, 2020). My biking incident could be said to have enabled learning with actors such as the quality of gravel, speed when biking, surface material and tyres, as well as the soft (at least relative to gravel) skin on my knee.

Another useful theory for understanding the role of education in this worldview is variation theory, which posits that if there is no variation (a world where everything is green), then no distinctions can be made (no colours, not even green, would be detectable). However, if a *contrastive feature* is introduced (another colour is added to the world), then even the first phenomenon that once was all-encompassing can be distinguished as a phenomenon among others (even green can be detected as a colour that something can have) (Marton, 2015). Even though this example represents an understanding of the world where entities have inherent properties, such as colour, the theory may be useful for understanding

diffraction and the configuring of boundaries for inclusion and exclusion. If we have not experienced something as bounded through differences that matter (as green not being a difference that matters in a world without any other colours), then that something will remain invisible to us. First when it is intra-actively bounded by inclusions *and* exclusions as a material-discursive practice, i.e. a distinct phenomenon, will it become visible and possibilities for reworking it opens up. In a sense, an “other” is constituted. The next time I am on my bike, I will know with my whole body that a gravel road is a different phenomenon than an asphalt road, and biking on the former will be a different material-discursive practice by demanding more attention, taking more time and after scratching my knee probably even making me reluctant to take the bike.

Regarding sustainability education, the question remains whether we should educate *for* sustainability when it is not unambiguously defined (Jickling, 1994). At the same time, there is an urgent need to do something about the current state of the world, even though there are different ideas about what actions to take (Kahn, 2010; Barad, 2007; UNEP, 2021). A seemingly straightforward example, such as my bike accident, can quickly become increasingly complex when asking questions around sustainability. Should we build roads using material originating from oil extraction which demands space resulting in land alteration and habitat destruction? If we should, should the roads be large enough to enable fast car traffic, or small and narrow only allowing bikes? Or should we build a specific bike lane beside the road using even more asphalt so that people can be urged to take the bike more often? Should we build straighter and faster roads so that car traffic can save fuel by going the shortest way? Can we find a renewable material for the roads? Or should we not build roads at all, forcing the system to change towards place independent work and slow transportation? None of these questions are easily answered if we take different perspectives into account. Rather, they are complex networks of emerging agency where causality and effects cannot be anticipated beforehand while still having to be addressed, so called “wicked problems” (Rittel & Webber, 1973).

An approach to these and other complex situations in education is post-normal learning (Wals, 2012). In this line of thinking, complexity is embraced without having to be resolved. Indeterminacy, interaction, boundary crossing and pluralism are emphasized along with “...synergy between multiple actors and the blurring of formal and informal education” (Wals, 2012, p. 16). The aim is to develop a capacity to bear dissonance and uncertainty, and to value difference and diversity while co-creating a sustainable future. This future requires “...not just any learning, but learning that leads to a new kind of thinking, alternative values, and cocreated, creative solutions, co-owned by more reflexive citizens, living in a more reflexive and resilient society” (Wals, 2012, p. 17). Even though the focus rests on human actors, and there is a lingering belief that humans can find solutions and steer the world into a better future, the concept of post-normal learning echoes thoughts in new materialism. The notion of co-

creation resembles the thought of distributed agency (Bennett, 2010; Latour, 2005), and the focus on dissonance and differences can be connected to the diffractively intra-acted patterns of differences that come to matter (Barad, 2007). There is also a connection between indeterminacy and the concept of *becoming* rather than already being. In this becoming, there is an indeterminacy until the actual intra-action has happened, i.e. nothing is determined beforehand (Barad, 2007). Not included in post-normal learning though, is the tracing of actor-network connections in acknowledging and accounting for it as a material-discursive practice. In what materialities might complexity be manifested? What more-than-human actors could be there in the co-creation of solutions? How can these solutions become embodied?

A relevant feature of education is that it is materialized through certain places, times and bodies as spacetime-matter (Barad, 2007). Tracing the connections making up the actor-network of education will take us through specific corridors, rooms, policy documents, weekdays, canteen workers, stages, schedule modules, pedagogical ideas, cleaners, working hours, course books, grading criteria, teacher experiences, bus time tables, and so on. At the same time, the new materialist view of the world (and learning) is not an approach that can be applied at certain office hours or conducted in specific rooms (Latour, 2005). It is a constant ongoing entanglement of diffractive patterns of mattering that cannot be switched on and off, and therefore learning is not something that is carried out outside of the world by a certain someone in a certain place at a particular time resulting in a particular outcome related to a predetermined goal. Thus learning and education need to be viewed as different phenomena.

Finally, a concept that connects to the notion of knowledge as embodied being-knowing is the Swedish word *kännskap*. It is coined by Isberg (1995), as a development of the word for knowledge, *kunskap*. *Kännskap* is when we have experienced and processed something not only with our brain through reason, *thinking*, but also with our body through practical skills, *doing*, and with our heart through empathy, *creating*. To strive for *kännskap* is to open up for being affected and to bind ourselves to the world around us in an interdependency that strongly resembles the new materialist material-discursive intra-actions. “Only when what you have in your hands have been reflected in your head and you feel it with your whole body do you have ‘kännskap’ of it”² (Isberg, 1995, p. 43). A way of translating the word *kännskap* is to look at the morphology. “Kunna” in Swedish means to “be able to” which can be understood as to “know” thereby connecting *kunskap* to *knowledge*. “Känna” in Swedish means to “feel”, which invites me to translate *kännskap* into *feelledge*. It looks and sounds a bit strange but I will nonetheless use it in this account, especially since the notion of *feelledge* seems to have been estranged

² In Swedish: “Först när det man har i händerna har blivit reflekterat i huvudet och man känner det med hela kroppen har man kännskap om det”

from us in our positivist paradigm where the focus weighs heavily over towards cognitive *knowledge* (Wall Kimmerer, 2020).

2.3.2 How to view the role of friluftsliv education?

Being set outdoors, Friluftsliv education can merge the worldview accounted for above with the view on learning as a material-discursive endeavour by opening up opportunities to keep the landscape flat, in a spacetime that is not as controlled by humans as an indoor setting. Outside of human-built walls, there are more potentially strong *mediators* (Latour, 2005), or *decisive operators* (Bennett, 2010), opening up ample possibilities to tune in to the emerging agency of heterogeneous assemblages involving a variety of actors. My own experience of friluftsliv is that when human bodies are exposed to for example weather, temperature, terrain and darkness, these more-than-human actors *must* be included in mattering in a more straightforward way than in the indoor landscape where many of them are excluded from mattering.

Given that learning in a new materialist sense cannot be restricted to certain times and certain areas, there is a large potential for friluftsliv education to be everywhere. In contrast to the discourse of extreme friluftsliv where the “experience” starts in a remote place carrying certain specialized equipment (Backman, 2011b), new materialist friluftsliv education can start with the very first step outside the door (and maybe even before that), where there are ample possibilities to connect with more-than-human actors and learn with them (Weldemariam, 2020). If we are always already entangled with actors such as air, earth, insects, equipment, maps and water, then a walk in the park or a day in the garden offers learning opportunities as well as a trip to the “wilderness”.

Learning can be traced in the movement of an assemblage, the constant affect between the actors involved in intra-action (Latour, 2005; Barad, 2007), which means that friluftsliv teachers become responsible for putting assemblages into movement and for paying attention to what agency is emerging in the intra-action. Furthermore, since both human and more-than-human actors are always already constantly intra-acting, the task for the responsible friluftsliv teacher would be to raise awareness about what is already there. The outdoor setting can make this task easier by providing an environment rich in more-than-human actors, rendering friluftsliv education especially rich in possibilities for creating new narratives of the world. This has been argued for by a number of scholars attempting to highlight the potential of outdoor and friluftsliv education to open up to an entangled worldview where more-than-human actors can play the prominent role that they always already have (Ross, 2020; Gough, 2014; Quay, 2016; Mannion, 2020). However, there is a tradition in outdoor education research to focus solely on human benefits such as health, well-being and improved learning (Dillon et al., 2006). In the next chapter, I will review some of the latest research in this area.

Chapter 3. Previous research

In this chapter, I will account for what other researchers have written about outdoor and friluftsliv education, internationally and in Sweden. The subsections will begin with a description of how the articles were found, followed by a review of the aims, the results, and how they can be viewed in connection to new materialism. A figuration of previous research will emerge that should be understood as the phenomenon to which I relate the findings of my own study. As such it is an important actor in the material-discursive meaning-making leading up to my conclusions about Swedish friluftsliv education and its role in the transition to a more sustainable world.

3.1 The selection process

In any selection process, agential cuts are made that determine what comes to matter and what is excluded from mattering (Gunnarsson & Bodén, 2021). In this review, these cuts were inevitable due to the vast amount of research articles that have been produced in the area. A search using the search terms “outdoor educat*” in the database Education Collection resulted in over 5,700 document hits. For reasons such as the time needed only to click on each hit and read the abstracts, it would have been impossible to cover all of those documents in a review. Therefore, I had to narrow the search down, which included certain documents while excluding others, constituting boundaries determining what was relevant and not to this particular project. This material-discursive practice of selection operated through an assemblage including search terms, search engines, data bases, my creativity, my previous search experiences, the Gothenburg university library service, computers, internet connections, reference lists, concepts used by others, etc. These and many more actors intra-acted the selection that I will present here, and I humbly acknowledge that it can by no means be regarded as a complete review of all the previous research that has been conducted in the field.

3.2 Outdoor education internationally

The main databases used to search for outdoor education research conducted outside of Sweden were SCOPUS and Education Collection. The former is a multi-disciplinary database, meaning that it searches for documents from different subject areas opening up for the possibility to find articles from sustainability oriented journals. The latter is a subject database, which means that it increased the chances of finding relevant articles from educational journals that might not be covered by SCOPUS. A search using only the search terms “outdoor educat*” resulted in too many hits to be processed, which eventually led me to limit the result to journal articles published or in press for publication during 2022. This resulted in eleven articles of which two reviews of previous literature were chosen. One literature

review on the topic that I had read before was added, which left me with a total of three reviews that could bring an overview of the current outdoor education research field.

In the next step, I searched for peer reviewed journal articles about outdoor education research within a new materialist framework. To the search term “outdoor educat*”, I added search terms related to agential realism, vital materialism, actor-network-theory or post-qualitative methodology³. This resulted in a total of fourteen articles from which six were chosen for review. Those six articles were selected by conducting word searches in the complete texts to see how well they met my inclusion criteria that they should address outdoor education as the subject matter, and that the aim and question should include outdoor education as a central concept. The agential cuts described here means that articles that might have been interesting from a new materialist sustainability perspective, such as research on critical animal pedagogies, human-nature intra-actions in urban settings, or early childhood education, was excluded from mattering in this particular account. Also excluded from mattering was all the recent research on the human-nature relationship in outdoor education that was not conducted within a new materialist framework.

3.2.1 Overviews

Dillon et al. (2006) summarized the results from a large review conducted on 150 pieces of research between the years of 1993 and 2003. The review was brought about by a growing concern for the decline in outdoor fieldwork in secondary schools, and focused on finding what values outdoor learning could have for students in the UK and elsewhere, and what obstacles there could be to effective outdoor learning. The results indicated that outdoor fieldwork could have positive impacts on students such as the development of knowledge both regarding outdoor skills and in other subjects back in the classroom. It could also impact attitudes and behaviour towards the environment in a positive direction. This was on the condition that the fieldwork was properly planned, well-implemented and carefully followed up afterwards. They also found that teachers needed to take into account factors such as age, prior experience, fears and phobias, preferred learning styles, ethnic identity and the features of the location, since they were all part of shaping the outcome of the fieldwork (Dillon et al., 2006).

The more recent reviews investigated the extent and nature of empirical research on school-based outdoor education in the Nordic countries (Remmen & Iversen, 2022), and what kinds of outdoor education programs were offered in the 63 school districts of British Columbia, Canada (Gruno & Gibbons, 2022). In the Nordic countries, empirical research had mainly been conducted in Sweden,

³ This is the complete search string (in SCOPUS): (TITLE-ABS-KEY ("outdoor educat*") AND TITLE-ABS-KEY ("agential realis*") OR TITLE-ABS-KEY ("actor-network-theory") OR TITLE-ABS-KEY ("actor-network") OR TITLE-ABS-KEY ("tracing analy*") OR TITLE-ABS-KEY ("diffract* analy*") OR TITLE-ABS-KEY ("vibrant matter*") OR TITLE-ABS-KEY ("vital material*") OR TITLE-ABS-KEY (postqualitative*) OR TITLE-ABS-KEY (posthuman*)).

Norway and Denmark. Only eight of the 52 articles reviewed concerned friluftsliv as a subject matter, and of these, three were conducted in Sweden. The other articles dealt with education in other subject matters conducted outdoors. The results of the review showed that health and safety were two dominant perspectives among outdoor teachers. They also showed that outdoor education aiming at younger children were often focused on well-being and learning in multiple subjects, while the education for older students focused on cognitive learning in specific subjects, and none of them were about well-being. There was also a noticeable lack of perceived obstacles to outdoor education among the Nordic teachers, even though some challenges regarding designing proper activities for learning could be detected. Regarding friluftsliv as a subject matter, the results showed a growing challenge related to influences from a more multicultural society and that the opportunities for friluftsliv among students were influenced by cultural and social class (Remmen & Iversen, 2022).

In British Columbia, schools offered programs with different kinds of foci: physical health and education courses, Indigenous focus, interdisciplinary programs, unique programs focusing on for example forestry or agriculture, and programs offering wilderness activities such as hikes or mountain biking. The authors concluded that outdoor education in BC was influenced by a range of different philosophies, and that it was often conducted on lands that had a troubled history of settler colonialism. Furthermore, most of the programs built on a view where nature was separated from humans. An exception to the above was the programs that explicitly focused on an Indigenous perspective on outdoor education. Here, there was an emphasis on a holistic relationship to the world, incorporating values, philosophy and action (Gruno & Gibbons, 2022).

To summarize, these overviews of outdoor education research showed both benefits and problems related to outdoor education. The benefits were often related to anthropocentric values such as health, well-being, learning and personal development, although there was some focus on positive attitudes to the management and preservation of nature. Problems related to outdoor education mainly concerned the demands of the setting, such as the need for time and suitable locations, and the difference in skills and prior experiences due to social background. All in all, though, the reviews showed no or little presence of the new materialist worldview of entangled relationships between humans and more-than-humans, except for some Indigenous influence in a few British Columbia courses. My conclusion from this overview is that outdoor education as well as the research about it mainly rest on the division of nature and culture as separate.

3.2.2 New materialist research

In contrast to the above, given that the six articles selected for the account in this section were all from the last three years, research on outdoor education with a more holistic approach seems to be gaining

ground in the wake of the so called posthuman turn (Ulmer, 2017) in scientific research. I will begin with a brief description of the articles before moving on to presenting the results and my conclusions.

Mycock (2020) aimed to find out how forest schools in England might create a pedagogical space for children to imagine and care for other worlds, thus enabling an alternative pedagogical response to the Anthropocene. In a study set in Finland, Vladimirova (2021) looked into the concept of care between children and forests and how that might affect children's embodied relations to a place. Targeting pre-service outdoor educators in Australia, Morse (2021) investigated how process-oriented philosophies might open up to ethics of connectedness by generating pedagogies that move beyond the (human) individual. Mannion (2020) looked at how environmental and sustainability education in Scotland could be understood via assemblage theory. Following year ten students from Melbourne on a river journey, Jukes et al. (2019) explored material configurations and encouraged educators to consider places and their more-than-human inhabitants. Finally, Jukes and Reeves (2020) used storytelling to investigate the relationship between humans and more-than-humans on a ski touring journey in Australia.

I will now give an account for my reading of the results of these studies in a way that I hope can do justice to their attempts to change outdoor education in a new materialist direction. By presenting it through a mix of vignettes and summaries, I aim to acknowledge the complex entanglements with the more-than-human world that the researchers have investigated.

Starting in the middle with a clay-tree-face-child assemblage to illuminate the embodied learning of a child meeting mud, feeling its qualities against skin, underneath feet, and finally merging with it into a human face on a tree (Mycock, 2020). This entangled bodies-in-becoming is described as speciation, the materialization of bodies shaping each other to be not-yet-species through a mutual intra-action where something new emerges and creates space for the more-than-human to become an active part of learning (Vladimirova, 2021). The learning with instead of about others occurs through paying attention to the assemblages that form, but not so much what they are but what they do, such as cave-humans-darkness-torchlight blurring boundaries between what is 15-year-old student bodies and the spacetime of a cave that has been inhabited by humans and more-than-humans for centuries. The sensory learning of stepping down into the cave's dark-damp-coldness, is a learning with place and those who inhabit it rather than in a place (Morse, 2021). The more-than-human has the capacity to be the co-teacher if we let it, such as a human-horse enabling learning with connections changing the abilities of a single human, and also noticing differences when one horse takes the lead of the less brave ones (Mannion, 2020).

The learning that emerged through these examples of outdoor education encounters with the more-than-human world (always already there but now paid attention to), was found to be an intense learning through affecting and being affected (Mannion, 2020). It was described by Vladimirova (2021) as *excess of life*, the intensity of an event creating “more” or “wow!”, as in “...a new and unfelt-before subjectivity of the unique event” (p. 57). This heightened the possibilities for creating more value by following that which glows. The learning was situated and embodied and could therefore not be generalized or packaged into a model to apply in any spacetime (Jukes et al., 2019). It was enabled in what Jukes and Reeves (2020) called “wild pedagogies” that embraced complexity and entangled relations in the making. These pedagogies rested on the purposeful uncertainty following an openness to the unexpected and not-yet-become. Mannion (2020) called it an assemblage pedagogy where adding more-than-humans meant the disrupting of existing assemblages. An example of this was two beetles mating on a branch demanding the attention of children in an outdoor lesson adding the value of curiosity and disrupting humanist pedagogies through the glowing of “others” (Mycock, 2020). The assemblage pedagogy (as well as assemblage research) worked from the middle in the flow of assembling phenomena instead of, like humanist pedagogies, starting with the human learner (Mannion, 2020).

Moving on through the merging of feet and wool into felt boots made from walking, an embodied learning leaving marks through connecting human-wool-movement-history-water-pressure-making into a story of Scottish drovers and handicraft (Mannion, 2020). Movement is also there in Australian rivers calling for attention while drawing human bodies into its intensity, or stones urging humans to throw them into the water. The same stones can hinder movement, leaving marks on human bodies when they trip and fall, forcing them to move slower creating an assemblage of embodied learning (Jukes et al., 2019). Movement of hot magma bodies as history-human-place-imagination-becoming can be movement-in-place that is always already there. But it can also be resistance when rocks emerge out of magma-pressure-temperature assemblages in movements too slow to be recognized by human senses, only by imagination. Lingering in that resisted movement can open up new spaces for more-than-humans to step in as co-teachers (Morse, 2021), like green barrels provoking thinking-doing about waste management intra-acting agency in the meeting with something unexpected (Jukes et al., 2019). This exemplifies learning with doing and not just learning by reading about, with movement aiding the doing (Mannion, 2020), and land being the co-teacher in guiding humans into mutual reciprocity rather than self-sufficiency and independency (Jukes et al., 2019).

A central feature discussed in relation to these mutual encounters was *care*, but not care as something given from a human subject to a receiving and cared for object. Rather, care emerged as care-in-between,

a movement of mutual vulnerability between actors in assemblages (Mycock, 2020). This was seen in an assemblage of children and blocks of snow shaped like a heart, where care was configured as creativity opening up rather than closing, a distributed intensity of worlding (Vladimirova, 2021). It was also present in a meeting between a wriggling worm and the palm of a child's hand awakening curious questions of needs of worms that humans could attend to and needs of humans that worms could assist (Mycock, 2020).

Finally, the reviewed studies emphasized stories as a central tool for outdoor education to disrupt existing narratives and take other paths. Stories of places told by different voices could be prompted by questions such as "Whose story?", "Who is co-authoring this story?", "What is it communicating?", "What stories are not told but always already there?" (Jukes and Reeves, 2020). The more-than-human as a storyteller could ask humans to step aside to hear the stories that were yet to be heard, and to ask questions about what power relations had kept them silent (Morse, 2021). These could be given a particular shape, like Brita, a more-than-human alter ego of the research assemblage capable of telling the entangled stories of the empirical material (Vladimirova, 2021). Taken together, the space opening up for outdoor education was to foster an ethical response-ability to respond to places, to humans and more-than-humans, to silenced stories, for sustainability (Morse, 2021).

To summarize, these studies on outdoor education all departed from an understanding of the world as entangled and complex, including both human and more-than-human actors in their accounts. They painted a picture of outdoor education as an arena rich with possibilities for making pedagogy out of those entanglements, even though they did not explicitly go through any didactical models step by step. This can be seen as an attempt to be loyal to the new materialist notion of a pre-determined working model being impossible to have since the world is always already happening and constantly changing. Just like in Jukes and Reeve's (2020) wild pedagogies, the research accounted for in the reviewed articles evolved with the world in iterative intra-action, leaving the accounts themselves somewhat different from the usually structured research articles. Hence the difference between the above review of them compared to the next section.

3.3 Swedish outdoor and friluftsliv education

In order to find previous research on Swedish outdoor and friluftsliv education, searches were conducted in the data bases SCOPUS, Education Collection and DiVA, the latter being a digital archive for Swedish scientific publications. The search terms used in SCOPUS and Education Collection were Swed* and "friluftsliv educat*" or "outdoor educat*". This resulted in nearly a hundred articles. Out of these, I cut away articles that were older than 2010 (with the exception of one article from 2008 that I had read prior to the search and found useful). Finally, nine journal articles were selected on the basis of them being

about empirical research explicitly addressing friluftsliv as a subject matter and/or involving concepts or activities closely related to friluftsliv. When adding to the search the previously used search terms relating to new materialist perspectives (see note 3 above), no documents were found. When removing the specific search terms for friluftsliv and outdoor education, only leaving Swed* and educat* together with the new materialist terms, over 50 articles were found. From this I concluded that there has been research on Swedish education conducted within a new materialist framework, but not in a friluftsliv setting. However, one of the articles found in the first search investigated friluftsliv education from a place-based perspective and can be said to take a new materialist approach despite the fact that none of the search terms figured in the abstract, title or keywords. In total then, I had selected nine articles about friluftsliv education in Sweden, one of which used a new materialist framework.

This search process indicates that, although there is a growing body of research on Swedish outdoor education, there are still not many studies that are dealing explicitly with friluftsliv as a subject matter. Most studies have focused on a broader definition of outdoor education as concerning any subject matter conducted outdoors. This could be seen in the review by Remmen and Iversen (2022) mentioned in the previous section, where only three out of 52 studies dealt explicitly with friluftsliv as a subject matter in Sweden. In addition to this, there is an even clearer gap in the research on friluftsliv education with a new materialist perspective. This may have implications for teaching and learning within this field, suggesting that there is a potential for developing new ways of learning with more-than-human actors in Swedish friluftsliv education. In any case, the need for research taking a new materialist perspective on that particular field is evident.

Finally, to complement the relatively small selection of research articles concerning Swedish friluftsliv education, I also conducted a search in the Swedish digital archive for scientific publications, DiVA, with the search terms “friluftsliv” and “utbildning” (Eng: education). This resulted in a selection of four relatively recent student essays dealing explicitly with friluftsliv education within the school subject Physical Education and Health (PEH).

3.3.1 Research articles

In an extensive research on Swedish and Scandinavian outdoor education, Sandell and Öhman (2010) aimed at highlighting “...the values embedded in outdoor experiences and discuss how encounters with nature can widen the scope of environmental and sustainability education” (p. 114). They wanted to show what potentials had previously been identified by means of an historical overview of central themes in Swedish and Scandinavian outdoor recreation and education movements, and they also wanted to investigate how these themes, expressed as values, were present in current educational practices. The latter was approached by case studies of three outdoor educational practices with roots in different traditions: traditional biology excursions, children’s development through outdoor

experiences, and the radical Nordic outdoor movement. Their overall claim was that there is a “...potential of a broadened and deepened context for sustainability decisions as a result of direct encounters with nature” (p. 124), even though they acknowledged that this does not mean that nature encounters necessarily lead to a desirable or predictable response to issues of sustainable development. This potential was presented in six themes: outdoor encounters can provide an experience-based meaning-making of nature; they can foster an ethical perspective based on relations; they offer a case of human ecology in practice; they make visible the quality of a simple life; and they can help develop democracy, identity and a sense of dwelling. Finally, nature encounters could also add a fourth perspective to the three traditional ones of economy, ecology and social sustainability. This perspective was an existential one with aesthetic and emotional relations with nature as the driving force (Sandell & Öhman, 2010). To sum up, the potentials of nature encounters in outdoor education brought forward were focusing more on ethical issues of lifestyle and relations than the scientific learning about nature. Even though the human was at the centre of attention, the authors were still moving towards a notion of wholeness and embodied learning. This could be seen as a promising start towards a new materialist view on Swedish friluftsliv education.

The ethical dimension of nature encounters in outdoor education was in focus also in Andersson and Öhman’s (2015) research aimed at identifying events when moral relations were established. They made video recordings of activities in the same outdoor education settings as in Sandell and Öhman’s (2010) study. Through a socio-cultural approach to analysing moral meaning-making, they identified three different types of moral events: moral reactions, actions regulated by norms, and moral reflections on situated norms and the breaking of common rules. The relations that were created depended a lot on the interplay between the encounters themselves and how they were talked about, but an overall finding was that the participants were often depicted as moral subjects while nature was depicted as an object. However, there were situations where both humans and nature were constituted as moral subjects, mostly in activities that involved children and animals (Andersson & Öhman, 2015). Even though the authors argued that the latter example depicted a holistic relationship to nature, no explicit attempts to go beyond the division between nature and culture could be detected in their account. Moreover, morality can be considered a human-centred concept where more-than-humans become mute recipients at best, which led me to conclude that this study made no explicit attempts to raise the voices of the “other”.

The relation between children and nature was investigated in two studies setting in pre-school outdoor education. Klaar and Öhman (2014) looked at how democratic and outdoor approaches were intertwined and how this affected children’s meaning-making of nature. They found that nature was mostly made sense of as a good and enjoyable place. The teaching was experience-based and the democratic approach

led to a focus on children's independent and individual inquiry into nature rather than being helped by the teachers to a structured and scientific process of knowledge-making (Klaar & Öhman, 2014). In a similar manner, Harju et al. (2021) found in their ethnographic inquiry into three mobile buses taking pre-school children outdoors that nature was depicted as a good and free place that provided authentic experiences that allowed children to "be themselves". The authors argued that this approach upheld the nature/culture divide by signalling "...a view of nature as a stable and context-free space, separated from the social and urban world" (p. 249). In this separated world, children were depicted as active and competent in relation to a passive nature (Harju et al., 2021). To sum up, the results from these two studies could be said to reflect the human/nature dichotomy that new materialist research is trying to overcome.

Research regarding friluftsliv as a subject matter in the school subject of PEH was recently conducted by Lundvall and Maivorsdotter (2021). They let students aged 15 write stories about their favourite place and used a transactional framework to "...explore the emotional, physical and cultural aspects of being in a specific place" (p. 2). Their findings showed that the children described local and nearby places rather than remote wilderness. The authors emphasized the implications for friluftsliv education to be reoriented towards simplicity and non-sportive lifelong learning by embodied relations with places. The results were argued to challenge the conventional view of what a favourite outdoor place could be, and question the prevailing approach of friluftsliv education as adventure- and activity-based, an approach that could possibly be excluding to less experienced students (Lundvall & Maivorsdotter, 2021). Even though the narratives of a favourite place could be seen as focusing on the relation between humans and nature, the perspective was still human-centred and the study made no mention of the role of more-than-humans in the emerging agency leading up to a place being denoted as "favourite".

A substantial investigation of friluftsliv education within the subject PEH was provided by Backman (2008, 2011a, 2011b). He looked at the expressed values of friluftsliv practices in teacher training, the formulation of friluftsliv and its relation to sports in national as well as local curricula, and the pedagogical discourses surrounding friluftsliv among teachers. By applying Bordieu's field theory and Bernstein's concepts of classification, framing and codes, he analysed interviews and texts focusing on both higher education and compulsory school. The results showed that teacher educators acted in the intersection between a sports discourse and an academic discourse, and that friluftsliv was valued but subordinate to the sports discourse. There was also tensions between "ordinary" and "exclusive" friluftsliv with the latter being considered important for "real" outdoor experiences (Backman, 2008). The investigation of text documents showed that friluftsliv had a weak position in national curricula, and that it was often reinterpreted into sports activities on a local level (Backman, 2011a). Finally, teachers of friluftsliv expressed the dominant discourses of an activity-based friluftsliv education. A

simple teaching that does not require technical means was unthinkable to the interviewed teachers. A tension could also be detected between curriculum texts and values from outside of the pedagogical context, and the author concluded that sometimes dominant discourses determined the practices more than the curriculum, while a break with those discourses might benefit more students (Backman 2011b). While these studies shed light on many problematic issues within Swedish friluftsliv education, the point of departure was still human interpretation and the voices of more-than-human actors remained silent.

In summary, the studies reviewed here indicated that Swedish friluftsliv education was mostly an anthropocentric endeavour based on (often adventurous) activities, but that there was some potential to develop it in a more holistic and sustainable direction. This was also claimed by Mikael (2018), whose study aimed to explore the educational potential of place-based approaches in the teaching of friluftsliv in PEH in Swedish secondary school. He used Deleuze and Guattari's concept of becoming and place-responsiveness to construct *becoming-place* as a lens for the analysis of material obtained from a longitudinal case study in which teachers were encouraged to try out friluftsliv projects where places were attended to through multiple connections of history, power, and ecology. The results showed that there were three discursive plateaus emerging in the friluftsliv teaching: school-based friluftsliv is the same as leisure and recreation, school-based friluftsliv is the same as outdoor recreational activities, and teachers perceive a lack of curriculum guidance (Mikael, 2018). When taking a place-responsive approach, the teachers could work with friluftsliv in new and innovative ways, going beyond the dominant discursive plateaus. This also enabled them to engage more in local cross-curricular practices. Finally, it enabled teachers to question taken-for-granted ways of conducting friluftsliv education which could in the long run establish education for a sustainable future as the main goal of friluftsliv education (Mikael, 2018). This one study provided a clear starting point for the possible development of friluftsliv education towards a more inclusive and entangled practice where more-than-human voices might be heard. Touching upon the study by Vladimirova (2021) from the previous section, this study also investigated the agency of the place assemblage and what possibilities that might bring for learning with the outdoors.

3.3.2 Student essays

The four student essays reviewed all dealt with Swedish friluftsliv education in the school-based subject PEH. The data in all four was collected through interviews with teachers from secondary school (Sandlen, 2015), upper secondary school (Biamba & Årman, 2020; Gunnarsson, 2016) and teacher training programs in higher education (Henriksson & Karlsson, 2017). Their aims were to look at how teachers' views on friluftsliv in school was affected by the curriculum (Sandlen, 2015), how friluftsliv were taught and valued (Gunnarsson, 2016), what areas of the subject PEH were in focus (Biamba & Årman, 2020), and how Swedish cultural traditions were viewed in relation to friluftsliv education

(Henriksson & Karlsson, 2017). The results generally aligned with the research described in the previous section. Friluftsliv was subordinate to sports within the subject PEH (Biamba & Årman, 2020), and it was sometimes considered difficult to carry out due to geographical, temporal and resource factors (Sandlen, 2015; Henriksson & Karlsson, 2017). There was also a strong desire to conduct exclusive friluftsliv with over-night hikes and “real” friluftsliv experiences (Henriksson & Karlsson, 2017; Sandlen, 2015) even though the simple and accessible friluftsliv was considered important since it had the potential to reach more students and since it constituted an important part of the Swedish cultural tradition (Henriksson & Karlsson, 2017). The results of Gunnarsson (2016) differed in that the interviewed teachers emphasized that they separated friluftsliv from sportive activities and focused on the meeting with nature in an everyday and accessible friluftsliv practice. They also claimed that they could reach the goals in the curriculum by means of ordinary friluftsliv (Gunnarsson, 2016). These last results seemed to indicate that other stories could be made possible within Swedish friluftsliv education.

3.4 Summary and gap to fill

When adding up the reviewed previous research to identify a point of departure, it became clear that there was a gap to fill when it comes to Swedish friluftsliv education and its potential to contribute to a more inclusive and entangled worldview. The findings of Mikael (2018) supported the lingering notion that Swedish friluftsliv education could indeed be developed towards a new materialist approach with positive results for sustainability teaching and learning, just like the examples from international outdoor education showed. In the coming chapters, I will account for my contribution to filling that gap by giving voice to more-than-human actors through an exploration of the material-discursive entanglements that are always already there in Swedish friluftsliv education.

Chapter 4. Methodological framework and research apparatus

In this chapter, I will guide the reader through the methodological framework that I have been operating within, and also give an account of the methodological choices that have formed this study. But first, I will reconnect to the aim of the study and the question guiding the process.

4.1 Aim and research question(-s)

The aim of this study was to empirically investigate the emerging material-discursive entanglements between humans and more-than-humans within Swedish friluftsliv education, and argue for the ways in which these create didactical and pedagogical opportunities for teachers and students to contribute to a more sustainable world. Throughout the whole process, I was guided by the key research question “*What material-discursive entanglements are unfolding in Swedish friluftsliv education?*”. However, when I entered situations where I needed to explain this in Swedish, an interesting linguistic challenge emerged. The direct translation of the research question into Swedish, “*Vilka materiell-diskursiva förvecklingar vecklas ut i svensk friluftslivsundervisning?*”, did not make sense. And seeing that the new materialist worldview and the central concept material-discursive were already difficult to grasp, I decided to change the wording of the question to “*Hur kan svensk friluftslivsundervisning förstås som materiell-diskursiva praktiker?*”⁴. This left only the concept material-discursive to explain which made it more convenient to use among people who did not have a previous understanding of a new materialist worldview. There were problems with that new wording, though, as the word “understood” (Sw: förstås) relating solely to human cognition. The word “reconfigured” (Sw: rekonfigurerad) might have been a more suitable choice within a new materialist terminology, but that would have meant another difficult Swedish term. I thus decided on a compromise between the intention of being true to the language of new materialism and the need to make myself clear. This became an example of how words come to matter as mediating actors (Latour, 2005), involved in a material-discursive practice (Barad, 2007).

4.2 Post-qualitative methodology

In this section, I will describe the methodological framework called post-qualitative inquiry, as well as reflect on research ethics in relation to this particular project. First, I will briefly reconnect to the new materialist framework and its implications for scientific work.

⁴ In English: *How can Swedish friluftsliv education be understood as material-discursive practices?*

4.2.1 Understanding the new materialist world scientifically

The major implication for scientific endeavours in a new materialist worldview is best expressed by Niels Bohr and Karen Barad: “We are a part of that nature that we seek to understand” (Barad, 2007, p. 67). This means that any attempts of placing the researcher outside of what is being researched has to be replaced by an entangled relationship between them. With this follows the reconfiguring of concepts such as method, data, analysis and results. They cannot be approached and treated separately, but must be considered entangled and always already there (Gunnarsson & Bodén, 2021).

The task for a new materialist researcher is to follow the actors through every materialized node, slowly and without leaping through some unaccountable force called structure, norms, society or education. Every translation in an actor-network leaves a trace that should be followed without being replaced with the researcher’s own explanations. This requires attention, time and patience, and above all loyalty to the actors, whomever they might be and by whatever means they express themselves (Latour, 2005). In this tracing, the challenge is to pay attention to patterns of differences that come to matter and become decisive of different phenomena by staying attuned to what emerges through changes, accidents, innovations, disturbances, controversies, or other triggers that make actors and their movements visible and agency arise to leave marks on bodies (Latour, 2005; Barad, 2007). To embrace the world’s emerging complexity is to acknowledge that there is always movement, before we enter and after we are gone. We will miss most of what happens (Latour, 2005), and there is no such thing as a complete or finished account of “the truth”. In this respect, *objectivity* is simply about accounting as clearly and unambiguously as possible for what emerges (Barad, 2007; Gunnarsson & Bodén, 2021).

4.2.2 Post-qualitative inquiry

A suitable methodological framework for a new materialist study attempting to embrace the world’s complexity and its rich flow of entanglements is *post-qualitative inquiry* (St. Pierre, 2018). The prefix “post” is meant as a critique of qualitative research methodology, and as an attempt to go beyond interpretative human-centred methods to embrace a complex reality that cannot really be controlled or captured “as it is”. This decentring of the human is not necessarily a starting point in itself, and not to say that the human is unimportant, but rather a consequence of taking all actors into account on equal terms (Gunnarsson & Bodén, 2021). Post-qualitative inquiry also aims at letting go of the degree of control and systematization usually built into scientific studies.

This experimental work is risky, creative, surprising, and remarkable. It cannot be measured, predicted, controlled, systematized, formalized, described in a textbook, or called forth by preexisting, approved methodological processes, methods, and practices. ... Its focus is not on things already made but on things in the making. ... Thus, the post qualitative inquirer does not know what to do first and then next and next. There is no recipe, no process. (St. Pierre, 2018, p. 604)

Post-qualitative inquiry has been described as an antimethodology since it “...resists an approach ordered definition of reason and practices. Rather, it is a product of what a study does.” (Nordstrom, 2018, p. 223). In other words, post-qualitative inquiry attempts to start in the movement of a continuously evolving reality instead of starting with a predetermined focus on what to study. As can be seen in the quote from St. Pierre (2018) above, concepts such as measurement, systematization, control, prediction and method are rejected, especially in the early texts on post-qualitative inquiry where a high level of critique against positivist influenced qualitative traditions within research methodology was formulated (Gunnarsson & Bodén, 2021).

In this study, I do not agree with the *rejection* of qualitative research methodology. Rather, I side with Gunnarsson and Bodén (2021) in considering post-qualitative inquiry as *building on* or *departing from* qualitative research methods. In this lies a recognition of the benefits of adding to instead of doing away with, and by that creating multiplicity as something more instead of something else. Also, in an academic project there are certain procedures and structures to follow, and a written (and readable) thesis or article is to be produced within a given time frame. This implies the need for some degree of structure and planning as well as the inevitable simplification when transforming experiences and events into a human language inadequate for capturing the complexity of a material-discursive reality. An important ethical implication of this paradox is the need to stay open and transparent throughout the whole research project in order to be able to account for what comes to be in a clear and understandable way, all the while being aware of (and open with) the fact that the whole complexity of the world can never be captured in a string of words (Gunnarsson & Bodén, 2021; St. Pierre, 2018).

The question of research quality in post-qualitative inquiry centres around the notion that knowledge is always situated and local, and as such cannot be validated by other researchers since no two situations are alike. The knowledge production is not about creating solid results that can be replicated, but about multiplicity and creating *more* instead of validating *the same*. Hence, a reliable and well-done post-qualitative study becomes different from that which was conducted before (Nordstrom, 2018; Gunnarsson & Bodén, 2021). A key to this quality lies in the researcher’s ability to construct a research apparatus (see section 4.3 below) that enables rich encounters with the world, while at the same time aiding a transparent and clear description of how the knowledge resulting from that particular study has been produced. Critique, creativity and ethical responsibility are central features of this process. It also requires time and engagement, as well as curiosity and a thorough attention to what happens in every given moment to ensure that negative patterns are not unintentionally reinforced. The research should

“...make possible new connections and the creation of new realities that also question what we otherwise take for granted”⁵ (Gunnarsson & Bodén, 2021, p. 39).

Post-qualitative inquiry has been criticised for making humans and humanistic ideals such as equality and rights invisible (Gunnarsson & Bodén, 2021), as well as for suggesting that this turn is something new, when in fact it operates in the same way as humanist research has always done (Petersen, 2018). These are relevant points that need to be balanced in an inquiry that attempts to go beyond humans while at the same time being conducted by a human. In this study, I constantly had to dwell in this balance, which I hope will be sensed throughout this account, especially in the following sections describing research ethics and the research apparatus, as well as in sections 7.2 and 7.3.

4.2.3 Research ethics

The European codex for research integrity has four main points: *reliability* concerning the overall design of the project and the alignment between its components; *honesty* in terms of conducting, assessing and reporting the research in a transparent, open and honest way; *respect* for participants, other researchers and the environment; and *responsibility* in relation to the research process, but also for the possible consequences of the research beyond the actual project (Vetenskapsrådet, 2022). These concepts are also cornerstones in post-qualitative research (Gunnarsson & Bodén, 2021), and they were guiding me throughout the whole research process.

Reliability was addressed through my immense engagement with the new materialist framework and with post-qualitative inquiry as a suitable methodology for conducting research within it. I also took great care to use a terminology consistent with this worldview in order not to reproduce narratives of separation and dominance. This is reflected in the thorough account for new materialism in chapter two, as well as the above account for post-qualitative inquiry, but it can hopefully also be sensed throughout the whole text as a thread binding all the sections into a coherent whole. *Honesty* was ensured by me being at all times open with my own starting point as well as the purpose of the study. This is reflected in the fact that the aim of the study and point of departure are repeated several times throughout the report, and in the preparations for the school visit described in section 4.3.2. An important contribution to honesty is also the descriptions of agential cuts throughout this report, especially in chapter three, section 4.3 and chapter five. *Respect* was central in this research project since its aim was that we humans should approach the whole world with more respect. Respect towards the participants of this study can be seen in the consent form (appendix 1) and in the descriptions in section 4.3.2. It is also reflected in the fact that the details in chapter five were

⁵ Original quote in Swedish: ”...möjliggöra nya sammankopplingar och skapandet av nya verkligheter som också ifrågasätter det vi annars tar för givet.”

thoroughly chosen in order not to disclose any unnecessary information about individual participants. Finally, I addressed the question of *responsibility* throughout this study by responding with awareness to the assemblages in which I found myself, and the possible consequences of the agency that was set in motion. During and after the school visit, the human participants were invited to talk to me about any thoughts or concerns that emerged in connection to my presence, and the teachers involved were also offered to read and comment on a draft of the thesis before the final submission.

Throughout the study, I had a readiness for addressing any emergent ethical issues. No events that required specific ethical concern were encountered, though, with the exception of a situation with a student during the school visit that due to its nature cannot be discussed in this text. That situation was addressed in dialogue with the teachers to the satisfaction of everyone involved. It is important to acknowledge, however, that there were situations that could have been deemed problematic, as well as appeared in the findings of this study, had I operated within a different theoretical framework such as critical animal pedagogies or some social justice perspective. During the school visit, we engaged in activities such as ice fishing, and the mountain area visited by the course is situated within Sápmi, the land of the Swedish Indigenous Sami people. However, these situations did not elicit any reactions that stood out, even though I acknowledge that this might of course have been the case when I was not there to catch it. Hence I do not develop any discussion around them here, all the while recognizing that they fit well into the criticism of both anthropocentrism and the vertical power hierarchy between different bodies that I have brought up in this text.

4.3 Research apparatus

The concept *research apparatus* captures the notion that the whole research project constitutes an assemblage of its own, and that every part(-icipant) is always affecting and affected by the research. Concepts such as analysis, data collection, report, preparation, research question, researcher and participant, are entangled in intra-action and continuously recreated. The post-qualitative researcher should acknowledge and bear their complex entanglements, and stay attuned to their central concepts while being sensitive to whatever emerges and demands attention. Still, there is also the need to plan ahead and every research apparatus is formed by its agential cuts, i.e. the necessary choices made due to limitations in time and space combined with the impossibility to cover everything in a complex reality. Hence, some phenomena will be highlighted at the expense of others, which is something that the researcher as co-creator always needs to be transparent with and acknowledge an ethical responsibility for (Gunnarsson & Bodén, 2021).

In this section I will account for the different parts of this particular research apparatus and as transparently as I can describe the agential cuts that included some actors and events in mattering at the

expense of others. Since it is important to acknowledge the fact that I was also an actor in the research apparatus (Gunnarsson & Bodén, 2021), I will give a brief account of my own experiences as a researcher-human-student.

4.3.1 Choice of setting for a school visit

In order to investigate what material-discursive entanglements were unfolding in Swedish friluftsliv education, I had to engage in its practice through participatory research. Thus, I had to find a school that offered friluftsliv education and would welcome me as a researcher on the relatively undetermined premises that a post-qualitative inquiry requires. I wanted to join a group in either the regular school system or in the folk high school system. The former because it reaches virtually all children in Sweden, and the latter because it is familiar to me since I have worked at a folk high school for the past ten years. I contacted one upper secondary school and one folk high school that were both located at a convenient geographical distance from my home, and asked for the possibilities to come on a physical visit, which could have been problematic considering the still ongoing pandemic. Both schools were positive, though, and after giving the matter a great deal of thought, I decided to visit the folk high school. This was primarily due to the expectation, based on my own experiences, that a folk high school group and their teachers would be open to the new materialist worldview and post-qualitative inquiry. The search for previous research had also indicated that research on friluftsliv education at folk high schools was non-existing, and it felt meaningful to contribute to that gap in the academic landscape.

In conventional terms, this selection process resulted in a convenience sample which affected the possibilities of generalising the results (Langemar, 2008). However, since emerging knowledge in post-qualitative research is always considered local and situated, the concept of generalisability is not relevant (Gunnarsson & Bodén, 2021) and thus was not considered in the choice of setting.

4.3.2 The school, course and participants

The Swedish folk high school is a state funded adult education system open for all from the age of 18. It is situated outside of the regular Swedish school system, but they are connected since all Folk high schools are required to have a general course in which students can study core school subjects and gain access to higher education. Apart from the general course, every one of the 155 folk high schools in Sweden has their own profile courses depending on the focus of the particular school. The pedagogy of folk high schools is focused on the meeting between different people in small groups and the importance of dialogue for learning. Many schools offer dormitory rooms at the school, which means that students, especially on the profile courses, often live and study together at the school. Courses are free of charge and the students only pay for material and their living expenses (Sveriges folkhögskolor, 2022a; Folkbildningsrådet, 2022). A search using the term “friluftsliv” on the official website for folk high

school courses resulted in 62 hits on courses of varying length and focus situated in nearly all regions of Sweden (Sveriges folkhögskolor, 2022b). This showed that friluftsliv is a popular area of study within the folk high school system, and that most adult Swedes have access to friluftsliv courses free of charge in their own region.

The particular school that I visited offered several courses of different length that combined friluftsliv with handicraft and leadership. Before the visit, I had a meeting with the teachers and the head teacher where I explained the aim and research question of my study and how I wanted to conduct the research. For ethical reasons, I especially wanted to reach an understanding about the indeterminacy of a post-qualitative inquiry and that I would not be able to tell beforehand how long I would stay, what situations I would find interesting and what ethical considerations would appear. This was well received and a suitable time for the start of my visit was decided upon.

The group that I visited consisted of two classes, first-year and second-year, that were sometimes together and sometimes separated. On the morning of the first day, I met with the whole group to present myself and the project, as well as a consent form (appendix 1) with practical and ethical information. I asked them to sign the consent form whenever they felt that they had all the information they needed, which all of them, a total of 21 students, did during the course of my stay. I also received a signed consent form from the three teachers involved and the head teacher of the school. In the end, I stayed with the group for a total of three weeks. The first two weeks were spent at the school where the students had different scheduled activities such as repairing and making of equipment, ice fishing, winter baths, and planning journeys. The last week of my visit was spent in a mountain area about five hours north of the school. There, the task for the first-year students was to plan and conduct a three-day journey in smaller groups without the help from a mentor, considering everything from food and camping arrangements to means of movement and safety. The second-year students had time for shorter journeys of their own, and also engaged in the planning of an upcoming long journey where their task would be to mentor the first-year students in smaller groups.

In addition to humans, there were an endless number of more-than-human participants in this research apparatus such as dogs, stars, pikes, fire, snow, trains and buses, canoes, money, sun, tents, wind, water and moose. They all helped shape the research apparatus in their own special ways, but for obvious reasons they could not consent to being included through a written form. Instead, I attempted to honour their presence by always relating to them as vibrant actors in their own right.

4.3.3 Empirical material

Every study generates some kind of material. This is usually called *data*, while in a post-qualitative methodology that term tends to be avoided since it is considered strongly connected to the positivist

notion of going out into “reality” to “collect” information that was already there (Gunnarsson & Bodén, 2021). Instead, I will use the term *empirical material* (Gunnarsson & Bodén, 2021) to denote that which emerged during the study and that could somehow be analysed in relation to the research question. I view this material as not being there to begin with, but rather emerging in the intra-actions that were set in motion during the school visit. It is important to recognize that I was not coming in from the outside as an observer looking for whether there were any material-discursive entanglements to be discovered. Rather, I was entering a network of material-discursive entanglements that was always already in motion and that would keep moving after I had gone (Barad, 2007; Latour. 2005).

In order to experience and communicate material-discursive entanglements, tuning in to my surroundings as well as my bodily self beyond cognitive thinking was important to me throughout the whole project. Walks, meditation, time for reflection and rest were crucial parts of my empirical work, especially during the school visit. The reading of previous research, theoretical texts and talking to other people about their worldviews were also important to open up new horizons for me. All of these activities included several agential cuts, though, as time was forcing me to make a selection of what texts to read, who to talk to, when to engage in social activities and when to spend time on my own. These cuts determined what horizons and possibilities were made available to me in co-creating the empirical material (Gunnarsson & Bodén, 2021). Viewing this through Marton’s (2015) variation theory, it is important to acknowledge that I do not know what blind spots I had during the project where no contrastive features had been opened up.

The tools for capturing that which caught my attention were predominantly pen and paper. I had three diaries in which I noted whatever came to my mind. One was kept at the bedside locked in my room, and the other two I kept with me in my pocket and my backpack. I was careful not to write out names or other personal information that might become compromising should they fall into the wrong hands. I also kept a journal in an online service over my personal experiences during the whole thesis course. In addition to this, I took pictures both with a camera and my phone. I also made some voice recordings on my phone when the diaries were not close at hand, and some recordings of soundscapes that could not be captured in words. In addition to this, I made one recorded interview with two students. This interview was not transcribed, but I listened to it several times during the analysis process and extracted the parts that were especially vibrant to me. Throughout the school visit, all the material was transferred over to a USB memory stick that was protected with a password. After coming home, I also scanned all my notes and put them on the memory stick. The physical note books were then kept in a safe together with the signed consent forms.

Apart from that which materialized as notes or sound recordings, I had memories of events, feelings, bodily sensations, conversations and other interesting remains from the school visit. These memories

came and went, and I wrote down the ones that kept coming back. In this way, more and more empirical material was created in a constant flow even after I had visited the school. This is a testimony to the notion that the world keeps moving and that an experience does not have a fixed beginning or end. The material was what can be called rhizomatic (Jukes et al., 2019) spreading laterally into different directions instead of organizing around a centre point or in a chronological timeline.

4.3.4 Analysis

Analysing the empirical material was a constant endeavour throughout the whole study when encountering and experiencing material-discursive entanglements. In that sense, the analysis cannot be regarded as a phase of its own. Still, in this section, I will make an attempt to account for how I analysed the empirical material and what kind of analyses I used.

One crucial implication of the post-qualitative intention of following the material (St. Pierre, 2018) is that there was no predetermined analysis model that I had decided to use. Instead, the suitable means of analysis was decided by the emerging material itself and the way in which it formed into certain patterns when I was engaging with it. In other words, the analysis tools, the material and myself iteratively intra-acted the findings presented in the next chapter. In the end, three kinds of analyses were used: tracing analysis, diffractive analysis and rhythm analysis.

A *tracing analysis* is connected to actor-network-theory and seeks to trace a phenomenon through the different interconnections of actors that intra-act it through associations that can be unpacked and investigated. The aim is to see how those networks are held together (or not), and also see how a certain phenomenon is configured and reconfigured depending on the intra-actions it enters. An important starting point for a tracing analysis is to consider all actors to be potentially equally important and not have a predetermined focus for the analysis. Another principle is to never assign a certain agency or property to a phenomenon, but instead unpack the connections to and intra-actions with other actors that give the phenomenon its certain qualities in any given spacetime. This means that the knowledge created around a phenomenon through a tracing analysis becomes relational, contradictory and multi-dimensional (Gunnarsson & Bodén, 2021).

In a *diffractive analysis*, the focus lies on showing how parts that seem unrelated form relations that create patterns within the assemblages. It directs the interest towards practices, understandings and makings instead of focusing on accounting for meaning and individual actors' intentions. By reading different material through each other and also letting them come to matter in the researcher's own bodily experiences, patterns of differences that relate through each other are unpacked and made visible. A central feature is also to pay attention to the relations that emerge between the researcher and the empirical material (Gunnarsson & Bodén, 2021).

A *rhythm analysis* focuses on movement that is constantly repeated yet never the same. It is especially interested in everyday rhythms of energy, movement and bodies affecting us in subtle ways, and aims at investigating how doings and practices are organized around such rhythms, how they are kept stable and what happens when they change or are disturbed. In this way, the configuration of phenomena can be studied in their spatial and temporal becoming. By paying attention to how different rhythms overlap, reshape, repeat and stabilize, it becomes possible to study how different phenomena become related and affect each other in the emerging agency (Gunnarsson & Bodén, 2021).

One major challenge in the analysis of the empirical material was the fact that more-than-human actors have their own unique ways of expressing themselves, while I am bound to human means of communication. This is a dilemma in post-qualitative research that cannot be solved, only acknowledged (Gunnarsson & Bodén, 2021). I had to accept that I cannot go beyond my own human-ness and become something else, but instead tune in to the material as best I could and pay attention to the actors and the means by which they expressed themselves.

When engaging with the empirical material, I was constantly interrupted by connections leading me “...away from any given interaction to some *other places, other times, and other agencies*” (Latour, 2005, p. 166). This means that I did not start with a complete overview of the material that I then analysed in a systematic way, but rather the material and I co-created patterns leading up to the three themes that will be presented in the next chapter. By engaging with the material and paying attention to what elicited the strongest engagement in me, I chose the themes and the themes chose me. In other words, I did not follow any predetermined model and therefore the analysis process cannot be replicated. This is a central feature in post-qualitative inquiry, since the underlying assumption is that the events described here are local and unique to the situations encountered (Gunnarsson & Bodén, 2021). Consequently, this means that they cannot be revisited by another researcher in order to validate my findings since they have already happened and can never be encountered again as they were. Instead, I will account for the analysis as transparently and honestly as I can, and I accept full responsibility for the agential cuts that I have made.

4.3.5 Researcher experiences

Throughout the school visit, I struggled a lot with the concept of role. Being in an educational setting triggered my well-known role of *teacher* with its assemblage of responsibility, planning, asking, showing, evaluating and encouraging. The role of *researcher* was easiest to maintain before and in the beginning of the school visit when the engagement with text books and research articles was fresh in me. Then as the school visit went along and I became more and more familiar with the group, I easily fell into teacher habits of focusing on the students and the dynamics in the group, and had to consciously remind myself of the reason I was there. Finally, there was the role of *Karin-the-human* with all of its

vibrant bodily and emotional sensations. In all of these roles, I was also simultaneously a learner and I often had to remind myself that I did not have to (indeed, should not) choose the appropriate role for the given moment, but rather embrace them all at the same time, resting in awareness of the entanglement between them that my body always already bear. This is one of the most important ethical implications of conducting research in a post-qualitative framework where the “researcher” cannot be separated from “the research” (Gunnarsson & Bodén, 2021), which was a challenge for me throughout the process.

Another challenge was to maintain the *not-knowing*-perspective described by St. Pierre (2018). The complexity in looking for something without knowing what to look for was at times hard to bear. Even though I had the research question and the central concepts of new materialism as guidance, there was still a lingering feeling of missing out on all the interesting things, and that I had to try harder. More than once during the school visit, I took comfort in the words of Latour (2005): “Even when we are in the midst of things, with our eyes and ears on the lookout, we miss most of what has happened” (p. 123). To engage in a world swarming with connections and intra-actions means overlooking most of it, and all that could be required of me was that I trusted the world and managed to catch something.

One common ethical concern in scientific work that I did not have to handle was the power position that being a researcher can mean in relation to the human participants (Preissle et al., 2016). From the first dialogue with the teachers, they made it clear that I would be considered a participant during my stay, and the group welcomed me as one. I took part in many of the scheduled activities they had, and I did not feel that anyone addressed me differently because I was a researcher. This is in line with my own experiences from being both a student and a teacher in the folk high school system, where a central pedagogical idea is that everyone involved is a learning participant. Of course, I do not know how they related to and talked about me when I was not there, but to the best of my knowledge, no ethical concerns about power had to be addressed.

In the next chapter, I will account for what came to be when the research apparatus I have described above was put into work. In this accounting, I constantly had to deal with the grief of not being able to recreate the swarming, vibrant, messy, complex and wonderful experiences I had as I engage with the world of my co-creators. Writing complexity down inevitably means simplifying it, and yet it is in the complexity, in the “too much” that the post-qualitative researcher has to dwell (St. Pierre, 2018). My hope is that I will do justice to the vibrant phenomena that were finally included in the account, and I offer my sincere apologies to the ones I have excluded.

Chapter 5. Findings, presentation and analysis

In this chapter, I will account for and analyse some of the entanglements between humans and more-than-humans that demonstrate how Swedish friluftsliv education can be understood as material-discursive practices. The account will revolve around three more-than-human actors: *fire*, *water* and *sun*. Events will be presented in short vignettes and then unpacked in analysis to show some of the ways in which these three phenomena made themselves intelligible. It is important to acknowledge that the account in this chapter makes up an agential cut including some actors in mattering, while excluding others. There was a vast amount of actors (human and more-than-human) that could have been in focus here, but due to limitations in time and space, all of the empirical material could not be accounted for. This should not be seen as the included actors being more important than others, just that they came to glow more in the relation between me and the empirical material.

5.1 Fire – a tracing analysis

Fire has been with me ever since the beginning of my two-year master program. During the final assignment of the first course, I encountered a description of a grading task from the Swedish national curriculum for the subject Physical Education and Health (PEH). In the task, the students were to find a suitable location where they would then build a fire place out of rocks and arrange material for the fire on top of it. Then “without lighting the fire” (Backman, 2018, p. 6), the students should explain where they would light the fire, how they would keep it burning and how they would extinguish it (Backman, 2018). When encountering fire during this study, the phrase *without lighting the fire* returned as an interesting point of reference in relation to the concept of embodied learning, which in the example from the PEH curriculum would not include fire, but rather rocks and sticks. The learning about fire would only be cognitive and abstract, at best. In this section, I will trace fire as a material-discursive phenomenon through a number of assemblages where different kinds of embodied learning were made possible.

5.1.1 Fire in the tipi story

I'm sitting on a log in the sunset listening to two students telling me a story of fire, a tipi, a home-made wood stove, winter cold, fireproof fabric, a glowing pipe, wood and snow. The evening cold is creeping up on us, and I can physically feel the need for heating arrangements if this were to be my home for any extended period of time. The students telling the story had been living in a tipi at this particular spot since the beginning of the school year and at first they had had an open fire place. Then they were offered a home-made wood stove for the winter, with a pipe that was a bit too short to reach all the way out of the centre hole of the

tipi. One day, after a cold period when they had had a lot of fire, the stove and the pipe became too hot and the tipi caught fire and burned down. When they reach this point in the story energy increases, and actors like ladders, buckets, snow, wet socks, tears, burned poles, minus degrees and adrenalin are flowing in and out as the students describe how they were trying to put out the fire. Emotions are visible, almost glowing in the fading evening light, and the words are stumbling over each other in their eagerness to come out and recreate the moment. Then, after describing how the fire was extinguished and all their stuff moved to a nearby shelter, the narrative slows down. It then revolves around the decision to keep living outdoors and the need to regain security about living in a tentipi with a wood stove. And also about the emotional impact the event has had on them: feelings of objectivity, gratitude, decisiveness and frustration, but also fear and a renewed respect for fire. (Multiple diaries, March 2022; Interview with two students, March 2022)

Fire was one of the first more-than-human actors to present itself during the school visit. At lunch on the first day, the students in the vignette above told me about the fire in their tipi. In the story, fire was what Bennett (2010) calls the decisive operator. At first, together with wood and a fire place inside a tipi, it intra-acted heat, making humans more comfortable. Then it entered into a different assemblage when the wood stove and a pipe that was a bit too short were introduced. The ability to produce heat was the same, but when fire was now locked in to increase intensity and control, it also became intertwined in a potentially more dangerous intra-action with the stove, the pipe and the fabric of the tipi. In new materialist words, as the assemblage changed so did the emerging agency (Latour, 2005; Bennett, 2010). As one of the students put it: *“And then the kamin came, and everything went downhill because... that thing was actually super scary ... But then, also, the stupid thing is you get used to it”* (Interview with two students, March 2022). Heat, control and danger increased in direct relation to each other, but there was also a normalisation process where the intuitive fear of the fire declined when nothing happened. In Latour’s (2005) terms, the connections in the assemblage became stabilized as safety. Then suddenly the connections were interrupted when the fabric of the tipi got too hot enabling the fire to escape its cage into a place where it should not be, and the whole assemblage changed. That intra-action left the humans exposed once again to the physical cold and the psychological fear since the actor that was supposed to keep them warm had instead destroyed their tipi. In other words, a new material-discursive configuration (Barad, 2007) of fire had emerged.

When I asked about the event in terms of learning, both the students depicted fire as an unpredictable actor in whose company we have to be careful and respectful: *“I learned a lot from it, also practical... like, no, never underestimate fire. Ever. (...) I think it’s more... having a healthy respect towards fire. Because at the end of the day... it is an element of nature. (...) You don’t know. It’s... unpredictable.”*

(Interview with two students, March, 2022). They also described how the event became an opportunity to try something new, maybe even build a tentipi of their own, which they later did. Hence, the students described learning with fire in a reconfigured relationship that became a contrastive feature (Marton, 2015) opening up new horizons. Through thinking, feeling and experiencing with their bodies how fire could intra-act differently with different actors resulting in a difference in emerging agency, they had gained a deeper feelledge (Isberg, 1995) of fire as a material-discursive phenomenon. This shows that the materiality of fire, i.e. the visual effect of a chemical reaction, also always has a discursive component which changes depending on the assemblage in which we encounter it. Hence, the phenomenon fire is iteratively reconfigured through every intra-action it enters (Barad, 2007), which I will show with some more examples.

5.1.2 Burning canvas

On stands outside the crafts building, two canoes are lying upside down with a thick white canvas cloth spanning over the wooden boards. They are waiting for students to coat them with tar but first lint has to be burnt off the surface of the canvas in order for it to accept the tar. The students are using gas burners to get a controllable and hot flame. But the flame has to be handled with care. The teacher explains that canvas is not highly flammable as long as it stays together. But at the edges where the threads of the fabric have unravelled, fire might get the upper hand and the glow can eat its way into the canvas and on to the wooden boards. The students carefully move the hot flame back and forth over the surface until it is smooth. Then they go over the edges one extra time with their fingertips, making sure that no threads are glowing before leaving the canoes for a fika break. After an hour or so they come back to find two holes where the glow has eaten into the canvas (image 1). The wooden boards underneath



Image 1. Glow-canvas-boards-holes in the canoe

are also burned, though not destroyed. One little missed glow and they now have to start mending the canvas before they can apply any tar. This time, just a few patches of cloth were necessary, but the teacher tells a story from another occasion where the intra-action between canvas and fire left a hole covering a large part of the front of the canoe. (Multiple diaries, March 2022)

The incident with the burned canvas made an impression on me and the students working on it. Fire entered the learning assemblage as a co-teacher to show us its two-edged nature. It was an indispensable tool in the process of making a canoe by intra-acting the canvas surface just enough to make it ready for the tar that would act as an agential cut separating water from air allowing the canoe to float. But when frayed edges joined the intra-action, the emerging agency easily transformed the canoe body from able-to-float to in-need-of-more-repair-work. The assemblage in this vignette consisted of the same lead actors as the story about the fire in the tipi: canvas, fire and wood. However, wood was not being used as material for the fire but as a frame for the canvas, and fire was not used for warming people but for removing undesired matter. Hence, the two material components fire and wood took on different discursive definitions, but as soon as fire escaped that definition and started intra-acting with wood and the canvas as were they burnable material, the whole event changed. In Barad's (2007) terms, the material-discursive phenomenon fire left certain marks on the canoe body, and these marks were not what the students were aiming for when entering that particular fire-canvas-wood assemblage.

5.1.3 Fire as part of leadership strategy

The second-year students and the teacher are talking about the upcoming journeys in which they are going to mentor the first-year students in smaller groups. Suddenly, fire enters the conversation when they are talking about setting camp and how to keep the group focused on their tasks. The teacher points out that fire can be used as part of an explicit strategy. If the fire is lit, people tend to gather around it and activity stops. So by not lighting it straight away, the group can carry on with their duties until they are done. Meanwhile, they keep warm by the activity and there is really no need for a fire. Then when the camp is set, the fire is lit as a means to slow activity down, gather the group and keep people warm. (Multiple diaries, March 2022)

In this event, fire was configured as having the ability to act by gathering people around it. In intra-action with aesthetic values and discourses of sitting around the camp fire, an agency could emerge that slowed people down into stillness and inactivity. In the particular material-discursive practice that the group was talking about, fire could be consciously utilized as part of a structure enabling what the leader of the group wanted to happen and hindering what they did not want to happen until it was time. Looking at a situation like this from Dewey's (1938/2015) learning perspective, the leader would also create circumstances (by denying the group a lit fire) for the learners to experience that they stay warm as long as they keep active. Then, by talking about it when the group had gathered around the fire, with the heat from the activity still present in their bodies, this experience could be manifested as an embodied being-knowing of how heat is intra-acted not only by fire or putting on extra clothes, but also by body movement. In this vignette, the teacher was describing a way for a friluftsliv mentor to follow Bennett's

(2010) call for responding responsibly to the movement in an assemblage by not introducing fire until the expected emerging agency was desired.

5.1.4 Fire and freedom

What a difference a fire makes when entering an assemblage! The light changes (visual senses), now together with the morning sun as well that shines in through one of the windows in this wooden tipi that I've slept in last night (image 2). It changes the sound as well (audial senses) both with the low flickering sound of the flames but also by the occasional sharp sound of a spark.

It changes my bodily sensations (touch senses) as the heat from the flames reaches my skin. It changes the smell (smell senses) of the place when the smoke dances around on its way up through the hole in the middle of the ceiling. But the controlled fire is also something that requires me to take part in the intra-action by feeding it burnable matter, a sort of care-in-between is created, right? Apart from electricity which requires effort from someone else (far from me) that I usually do not intra-act with, except for when I'm paying the bills that keep the electricity flowing through my cables... I care for the fire and



Image 2. Fire assemblage

I get an instant feedback. (Backpack diary, March 2022)

After talking to the students whose tipi burned down, I was drawn to the comfort of an electrified house, not having to deal with fire and its potential down-sides. But in the vignette above, I felt the satisfaction of being in connection with the source of the heating, overlooking its connections. I discussed this with some of the students when we were up in the mountains where there was no electricity, only activity, sleeping bags and fire to keep us warm. The difference between using electricity or fire for heating can be understood through the notion of freedom not as an absence of bonds but as being *well-attached* (Latour, 2005). Maybe, we would feel freer in a house that kept the indoor temperature around twenty degrees without us having to do anything else other than pay the bills. On the other hand, the connections of the assemblage necessary for that to come about would be longer than we could ever overlook, which would make us dependent on actors that we had no tangible connection to or could assert any or very little influence over. In other words, we would be bound to a network of actors in which we were not necessarily the most decisive operators (Bennett, 2010). If we, on the other hand, relied on fire to keep

us warm, be it in a tipi, a cave or a cabin, the physical effort needed would be substantially larger. We would need to gather wood, cut and chop it, stack it, take it in from the woodshed and light it. The effect would then vary depending on the amount of effort put in, the conditions outdoors and certain features of the residence. However, the connections to the actors in those assemblages would be shorter. The conditions affecting the temperature would be closer to us than if they were located in transactions on stock markets deciding the price on electricity. The wood would be there and tangible, and if we put enough of it in the stove at regular intervals, we would stay warm regardless of how our pay checks or the world situation looked. In the mountains when we felt the heat from the fire we had made, we were in closer contact with the connections making it possible and the traces they left. We were not free from bonds, but perhaps more well-attached?

This section has shown the deep complexity that the fire assemblages carry. This is a complexity that we have to bear since there is no straightforward answer to whether fire is “good” or “bad”. It simply *is*, and depending on the emerging agency in the assemblages it enters, its consequences might be perceived as good or bad, i.e. it will become material-discursively different (Barad, 2007). Here, there is a possibility for friluftsliv education to embody the concept of post-normal learning (Wals, 2012), and in the next section, complexity, freedom and connections will encounter another more-than-human actor: water.

5.2 Water – a diffractive analysis

Water is all around us, even inside of us. It is a prominent feature in everyday life, for some more than for others. Perhaps our thoughts most commonly revolve around water for drinking or washing, but in most parts of Sweden, water-as-snow or water-as-ice are also most definitely what Bennett (2010) calls *vibrant matter*. As I am writing this, snow is passing vertically outside the office window. For the third time today, after having fika, I had to shovel my way back to the little cabin on the yard where my study office is located. Even indoors, the assemblage of wind, water-as-snow and temperature is affecting my experience, visually whenever I look out the window and auditorily through the constant whining in the pipe of the wood stove.

There were countless encounters with water throughout the study and in the third week of the school visit, it began to glow. Water-as-snow was a prominent actor of the experience in the mountains, be it as hard morning crust or afternoon slush. It acted as a bearer of skis and pulkas, a building material for entrances to tents and a source of water for washing up. Water for drinking also became a more tangible actor in a place where there were no taps. To account for all the intra-actions with water in its different appearances, even in one single day, would be impossible. Therefore, I will focus on two

events involving a glass of water and unpack the actors involved in what Barad (2007) describes as diffractively creating patterns of differences within and between them.

5.2.1 A glass of water in the mountains

The student looks a bit weary when gazing at the almost empty water buckets clearly signalling the need for fetching water. Maybe the two-day journey has taken its toll and the afternoon is inviting to a nap instead of work? But perhaps the sense of loyalty to the group gets the upper hand when they pick up the buckets, hang them on the yoke and wander off through the slushy afternoon snow. I watch as they disappear behind the little hill, then as they return after about fifteen minutes with heavy steps, crouching under the burden. Almost there. Then in the split of a second the snow gives way from underneath the feet and the human body sinks to the thigh. The open buckets are not suitable for holding water during a sudden movement like that and half of the valuable load is lost to the already wet snow. (Backpack diary, March 2022)



Image 3. Hole in the ice for fetching water

In this event, actors such as buckets, water-as-snow, a creek, human muscles, a yoke, solidarity discourses, the sun and thirst were involved in intra-acting the material-discursive activity of fetching water. In the mountains, there were no taps or wells, so water had to be fetched from a creek about five hundred meters away (Image 3). There was a snowmobile track leading there which, at least in the morning, was hard enough to walk on without snowshoes or skis. Fetching water for one single person was easy since you simply had to carry a couple of bottles. But fetching water for over twenty people was different, and the students used a yoke and buckets. However, by allowing the students to carry two large buckets filled with water at the same time, the yoke also enabled the student-yoke-bucket-water assemblage to be about twenty kilos heavier, hence

more demanding for the snow to carry. This could be responded to by fetching water on the hard morning snow or going several times with small bottles. However, in the vignette above, the student misjudged what Latour (2005) and Bennett (2010) describe as the emerging agency in the snow-sun-body-weight-buckets-water assemblage, and therefore did nothing to mitigate the impact on the snow, such as putting on snowshoes or skis. In Barad's (2007) terms they did not respond well to the intra-action of which

they were a part, leaving them with the embodied being-knowing of the emerging agency of soft snow, human feet and heavy water buckets.

5.2.2 A glass of water at home

After returning home from the mountains, I sit at the kitchen table writing in my diary. When I feel thirsty, I leave my chair to get a glass of water. Fetch the glass from the cupboard, open the tap, wait for the glass to fill up, then close the tap and return to the chair. The whole event takes about twenty seconds, and it has not required any effort from me, except for rising from the chair and taking a few steps on the kitchen floor. The difference between fetching a glass of water here in my kitchen and back in the mountains suddenly dawns on me. (Backpack diary, April 2022)

In this event, the material-discursive practice of fetching water was very different from the one described in the former vignette. This assemblage seemingly consisted of actors like thirst, a cupboard, a tap, a glass, coordinated body movement and not much more. However, when following the connections necessary for that glass to be filled with water, what Latour (2005) calls a star-shaped actor-network was revealed. That network consisted of pipes, pumps, water companies, fees, thermal pressure, political decisions, filters, plumber's working skills and hours, the maintaining of public water reservoirs, billing systems and private economy among many other actors. In terms of embodiment, though, there would be no tangible experience of these actors unless a pipe would break and the water start coming out where it should not, or if I became unable to pay the bills and the water would stop running all together. But these occasions are so rare, and in such an ordinary event as the one in the vignette above, I would expect the water to keep running until the tap was closed. Moreover, if the water for any reason would stop running, I would expect someone from the water company to step in and take full responsibility for finding a solution to the problem since they would be the only ones with an overview of the whole network of actors. Hence, when fetching a glass of water at home, I would not have the chance to respond to the intra-action in the same way that the student in the former vignette had.

5.2.3 Water connections and freedom

As shown in the two vignettes above, a glass of water can be a different material-discursive phenomenon depending on the spacetimematter (Barad, 2007) in which it is set. Fetching a glass of water at home seemed like a simple enough act: get up from the chair, go to the tap and fill the glass with drinking water. In the mountains, on the other hand, the act of filling a glass with drinking water was a lot more physically and temporally demanding, even emotionally demanding when the snow gave way underneath an exhausted student's feet and half of the water was spilled. This might lead us to believe that having running water in our homes would be a sign of freedom since we would be spared many of

the burdens of fetching water in buckets. However, by unpacking the assemblages from the two vignettes, I have shown that the material connections of the glass of water in the mountains were shorter. They passed through buckets, a yoke, a creek, a hole in the ice on the creek, the physical movement of carrying the buckets to and from the creek, but not much more. Of course, each of those actors have their own networks of connections (Latour, 2005) which means that a glass of water, like any material-discursive phenomenon, could become an endless complexity of intra-actions, whether it was obtained in a city flat or by a mountain stream. However, the immediate connections of the glass of water in the mountains were easier for the person fetching it to overlook, even though it required a larger physical effort. That may again lead us to think that we would be freer when having access to the luxury of running water from the tap. However, if we (as with fire in the previous section) were to consider freedom not as the absence of bonds or effort but as being well-attached (Latour, 2005), then maybe an assemblage like the one in the mountains where we could overlook the connections would make us freer in the end? Consider what would happen if we could not pay the bills to the water company. Then the water would stop running from the tap for reasons that had nothing to do with the water itself, but with a lack of the transfer-matter that humans call money. In the next section, water returns but now as snow intra-acting outdoor rhythms together with the sun.

5.3 Sun – a rhythm analysis

When revisiting the empirical material after the school visit, the first actor that caught my attention was the sun since it showed up as an aesthetic element in many of the pictures. Morning sun rising over the fields (image 4), sunsets over the lake, glowing colours of the evening sky as the sun has just sunk below the horizon. It became clear how much the sun had affected my experiences simply by creating beauty. There were also the two fishing days, one with no wind and the sun shining from a blue sky, the other cloudy and with a stubborn wind over the lake. They certainly enabled a tangible learning experience of the qualities of the sun. At another occasion, when the group and I stood in the sun with our clothes

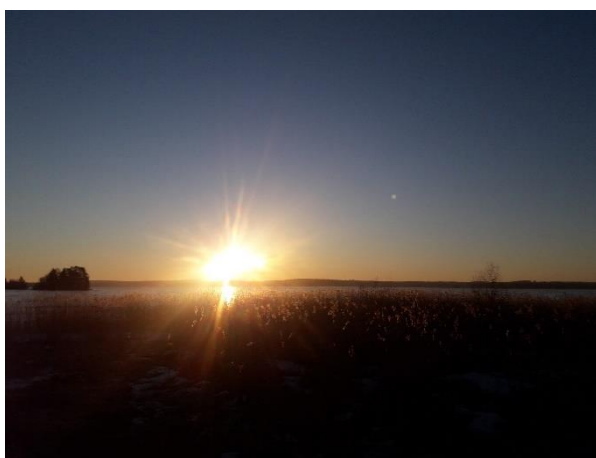


Image 4. Morning sun

soaking wet after going through the ice (as a planned activity), we had yet another embodied experience of those qualities. Surely, the meaning-making, the *discursivity*, of that winter bath would have been utterly different on a cloudy and windy day. In the mountains, it became even more tangible. Whenever the sun was shining from a blue sky, life felt easier, even if the snow became slushy in the afternoon and the eyes of the student that forgot their sunglasses might disagree.

As with water, the many connections to the sun encountered each day cannot be fully covered in this account. Instead, I will focus on a couple of rhythms that the sun was part of intra-acting. These rhythms became especially tangible when the group went up to the mountains.

5.3.1 The rhythm of daylight

There's a rhythm to the days here, a rhythm that follows the light and the weather systems. In the morning it's calm and quiet and the light is back and the heat comes if the sun shines. (...) Then, during the morning the energy increases, both in the students preparing for small hikes and in the increasing wind (that together with the sun offers opportunities to dry things that have become wet from activities yesterday or damp from the night cold and condense in the tent). Then some time during the day the energy peaks (maybe following the arch of the sun) and it gradually becomes stiller, especially when the darkness comes. Then in the evening, the darkness and the cold slows everything down until eventually we go to sleep, trying to harness the warmth that is left from the day (stored in your body and kept at bay by the sleeping bag). Then it starts all over again." (Backpack diary, March 2022)

The rhythm of the sun rising and falling throughout the course of what we call a day is as old as the planet, and it has been with humanity since our very first steps on this earth. The constant shifts between light and dark has guided us in our activities up until about 150 years ago when electric light made us independent of the rhythm of daylight. In the last few decades, researchers have become increasingly worried about what effects the bypassing of this ancient rhythm might have on us and other biological creatures. The initial results of their research have been alarming. Night-living creatures are losing their habitats and becoming extinct. Humans are being disturbed in their sleep rhythms with large consequences for individual and public health and quality of life. And in addition to this, the aesthetic quality of looking up on a star-filled night sky is lost to an increasing number of people in our urbanized world (Eklöf, 2020).

In the mountains, far away from electrified venues, this ancient rhythm became prominent, and in the vignette above I was reflecting upon it one morning while enjoying the first rays of sun warming the tent listening to the sounds of people waking up around me. The rhythm of the sun directed our movements, and as the first-year students were splitting up into groups to leave for their three-night journeys, the daylight rhythm became what Bennett (2010) describes as a vibrant actor capable of making a difference. When one of the groups went through their plans one last time with the teacher, the conversation partly revolved around the importance of daylight and its implications for planning and conducting a journey. Apart from the advantages of having full visibility when for example setting the camp, using the sun as a light source could also spare other light sources such as flash lights or candles, which could be everything from convenient when waking up in the middle of the night in need of a toilet

visit, to lifesaving in the event of an emergency. In Barad's (2010) terms, the sun became a material-discursive phenomenon intra-acting differences that mattered. The teacher told the students that by measuring the distance between the sun and the horizon with their hand, an approximate of the remaining hours of sunlight could be calculated. One finger represented about a quarter of an hour. Hence, the daylight rhythm was reconfigured as a material-discursive phenomenon, materialized through the body and the sun itself, leaving humans with meaningful information about for example whether to keep going or to set camp. By entering into conversation with the surroundings and tuning in to the rhythm of daylight, the students could make their journey both safer and more comfortable. In Bennett's (2010) terms, they could responsibly enter assemblages in which they would contribute to the agency needed for them to have a good and safe journey.

5.3.2 The rhythm of sun-spring-winter-snow

The sun and the wind are cooperating to make me uneasy about the tent. The sun is melting the snow where my tent stakes are, especially on the side exposed to the wind. I had to add a shovel and human energy to put extra snow on top of the stakes. We'll see if it will be enough. That matter can be assessed in a pretty straightforward manner: either the tent is still there or it isn't.
(Bedside diary, March 2022)

In the spring-winter mountains, the sun would change the water-as-snow in a certain rhythm during the course of a day. This rhythm decided what activities could be carried out with ease during certain hours. In the morning when the snow was still hard from the night cold, it would hold for walking, which meant that the first half of the day was generally suitable for things such as fetching water, taking walks and bringing in wood from the shelter. The second half of the day, when the sun had made the snow softer, was more suitable for activities such as washing up using wet snow that could easily be melted into water sparing us of the walk to the creek, or packing the snow on the paths between the cabins and the toilet. Paying attention to this rhythm enabled us to organize our doings and practices in certain ways, as described by Gunnarsson & Bodén (2021), which made outdoor life easier. However, this rhythm was not the same every day. How much the sun could affect the snow of course differed depending on the weather, with temperature and the amount of clouds as mitigating actors. It was also part of the larger rhythm that is constituted by the changing seasons, meaning that if we had been there in December, we would not have had to consider it in the same way as we had to in the end of March. Taking these actors into account could make it easier to respond to the emerging agency that enacted variations in the sun-snow rhythm.

In the vignette above, the sun-snow rhythm was part of a particular agency in relation to piles of extra snow put over tent stakes. On the last afternoon in the mountains, the wind had increased and there was a warning for strong wind during the night. The snow on the sunny side of my tent had become too soft

to hold the tent stakes. That side was also where the increasing wind came from, so I waited until the sun had descended and the snow was still soft but not wet, before moving the stakes to new positions and packing piles of snow over them. In the evening the piles of snow had frozen and become really hard. The wind increased and after not being able to fall asleep in the noisy tent, Birk the dog and I resorted into one of the cabins, leaving the tent to manage the storm as best it could. However, at 4 am the wind was still as hard as when I had left the tent, which made me realize that while the frozen snow would not let go of the stakes, at a certain point the fabric of the tent would give in. I decided to go out and take the tent down before it blew apart. That is when the frozen piles of extra snow became a deeply annoying obstacle to overcome, and it took me almost half an hour to get the tent into safety. This event shows how the same actor (piles of packed and frozen snow) became part of a different assemblage with emerging agencies making the meaning of those piles very different from what I intended when I built them. In Barad's (2007) terms, their material-discursivity had changed considerably, and in the hard wind at 4am, I wished that I had taken the tent down in the afternoon when I was still in phase with the sun-snow rhythm of the day.

To sum up, this section has shown how the sun and water-as-snow affected each other in what Gunnarsson & Bodén (2021) describe as a rhythmic agency that could reconfigure phenomena. Not paying attention to that could mean irritating things such as spilling buckets of water or having to work really hard taking down a tent at the wrong hours. But it could also have become dangerous if a human had walked too far out in the forest when the snow reached the point beyond which it would not carry their weight anymore. A situation like that might at best have meant an embodied learning about the intra-action between sun, snow, and body weight. At worst it might have resulted in an emergency and a difficult rescue situation. Luckily, none of us encountered such a serious agency during the week in the mountains.

5.4 Summary

In this chapter, I have unpacked and elaborated on some of the events that have been glowing the most during this study. The more-than-human actors fire, water and sun have been the lead stars in the narratives. They have intra-acted the complex reality of Swedish friluftsliv education together with other actors such as tent stakes, snowshoes, humans, buckets, sheets of canvas, pipes, freedom, leadership strategies, fear, glasses, and not least each other. In the next chapter, I will discuss the implications of these material-discursive entanglements for Swedish friluftsliv education and how they can be central in its contribution to sustainability.

Chapter 6. Discussion

Throughout this research project, I was guided by the question of what material-discursive entanglements were unfolding in Swedish friluftsliv education. In the previous chapter, I have accounted for the empirical investigation into some of them and showed how Swedish friluftsliv education is always already a material-discursive practice filled with connections between humans and more-than-humans. In this chapter, I will connect back to new materialism, theories on learning, and sustainability discourses to discuss how Swedish friluftsliv education can be a part of the necessary transition to a more sustainable world by raising awareness of and learning with the entanglements between humans and more-than-humans.

6.1 Education for sustainability or sustainable education?

Learning as being-knowing is always already there in a world that is considered a constantly changing assemblage of agency leaving marks on bodies (Latour, 2005; Barad, 2007). If for now we set aside the question about whether education should be for something (Jickling, 1994), we can focus on what kind of learning could be made possible in institutionalized education. To start with, if experiencing is a central part of learning, then the task of education is to make possible experiences that are rich, agreeable and comprehensible (Dewey, 1938/2015). Then there is a need for variation in these experiences, both in order to learn new things and also to become aware of that which is already there (Marton, 2015). Adding the new materialist worldview to this assemblage, education for sustainability would be about

...making visible what is invited and what is foreclosed in the knowledge production [and making] possible new connections and the creation of new realities that also question what we otherwise take for granted [in order to] create caring relations and meetings with a diversity of human and nonhuman participants [that] increase the possibility for change.⁶ (Gunnarsson & Bodén, 2021, p. 39)

The concept of post-normal learning (Wals, 2012) offers a suggestion of how this kind of education could be carried out by emphasizing the need to focus on students developing skills that enable them to bear dissonance and complexity by critically engaging in conversation and co-creation. This is especially important in relation to sustainability which in itself is a complex concept, and regardless of which perspective on (un-)sustainability issues we take, we are bound to encounter wicked problems which have to be addressed while at the same time lacking a straightforward definition or a generally agreed upon solution (Rittel & Webber, 1973). This leads me to re-write education for sustainability as

⁶ Original quote in Swedish: "...synliggöra vad som bjuds in och vad som utestängs i kunskapsproduktionen. (...) ...möjliggöra nya sammankopplingar och skapandet av nya verkligheter som också ifrågasätter det vi annars tar för givet. (...) ...skapa omsorgsfulla relationer och möten med en mångfald av mänskliga och icke-mänskliga deltagare ökar möjligheten till förändring."

sustainable education, an education that is not necessarily prescriptive when it comes to individual behaviour or policy making, but rather preparing its students to deal with complexity and uncertainty in an ever changing world. This would also mean having the courage to be open to the swarming “others” of the world (Bennett, 2010).

As shown in the previous chapter, Swedish friluftsliv education is full of possibilities for students to develop the skills and courage to face complexity and messiness without having to diminish and simplify. By meeting, paying attention to and learning with the more-than-human world, friluftsliv students could be guided towards the capacity to face its otherness without resorting to the common anthropocentric response of domination and silencing (Cohen & Duckert, 2015). This kind of education means that also teachers need to be able to bear complexity and uncertainty, which might be challenging in a reality that is sometimes perceived as stressful and lacking guidance (Sandlen, 2015; Henriksson & Karlsson, 2017; Mikael, 2018). Here, they can be helped by the notion of wild pedagogies (Jukes & Reeves, 2020) where a purposeful uncertainty is opening up spaces for the unknown, hence a bearing of complexity in practice. This resonates the not-knowing-perspective from post-qualitative inquiry (St. Pierre, 2018) and would imply that teachers avoid planning too much in order to open up for following events as they unfold. This opening up can also be aided by assemblage pedagogy (Mannion, 2020) that by paying attention to more-than-humans can disrupt existing human-centred assemblages and follow the flow of new ones evolving. I argue that this would enable an education that in itself is sustainable instead of an education stepping in from the “outside” to promote predetermined solutions. In the next section, I will elaborate on possible co-teachers in a sustainable friluftsliv education.

6.2 Learning with the more-than-human

The outdoor setting in which Swedish friluftsliv education is carried out has been argued to create possibilities for learning with the complexity of the world (Weldemariam, 2020; Quay, 2016; Mannion, 2020; Ross, 2020). This study empirically supports this claim. The more-than-human actors fire, water and sun have been offering their teachings in the assemblages they have entered, making possible an embodied learning with the emerging entanglements between humans and more-than-humans. By fetching water from a stream, mending the burned canvas of a canoe, sinking to the thigh in soft afternoon snow and having their tipi destroyed, the students involved have experienced these actors and the marks they leave on bodies, reaching a feelledge (Isberg, 1995) of the material-discursive qualities they have.

Through the experiences with more-than-human actors, Swedish friluftsliv education offers rich possibilities of discussing and problematizing the dominant discourses of human/nature separation (Kahn, 2010) and enhancing an awareness of the entanglement between matter and meaning (Barad,

2007). By tracing and discussing the connections of a glass of water in our daily lives, and comparing them with the situation in the mountains or for people in other places around the world, the differences might open up for a deeper understanding of the complexity around water as a material-discursive phenomenon. Also, the analysis of a glass of water in the mountains or an open fire for heating can serve as a starting point for discussing the concept of freedom and whether it means being detached or well-attached (Latour, 2005). Do running water from the tap or electric radiators make people freer? Or do they make people more and more separated from the source of consumption until they are detached instead of well-attached? This discussion can be problematized even further by considering human “others”. The impression that the glass of water from the tap means more freedom could be true when considering the fact that finding good drinking water is an activity that dominates the lives of millions of people, predominately women, around the world (United Nations, 2022a). Fire is still a source for heating and cooking in many places of the world, which can be problematic due to its hazardous nature, emissions of greenhouse gases when using fossil fuel, and adverse health effects connected to poor combustion, especially affecting women. This has placed access to electricity as a top priority in one of the seventeen sustainable development goals (United Nations, 2022b). Expanding the conversation to a global level creates situations in which post-normal learning (Wals, 2012) becomes possible and even essential. The question of whether fire should be left outside in cosy campfires or used to heat up modern houses does not have a straightforward answer, nor does the question about whether water is best left running free to be fetched or locked up in pipes and delivered to the tap. These are wicked problems (Rittel & Webber, 1973) with a multitude of star-shaped connections (Latour, 2005) that can be unpacked and critically reflected upon. If teachers bring the students outside to have these kinds of conversations around a camp fire or by a creek, the voices of fire and water themselves can literally be heard, and the human-centred narratives diversified.

In new materialism, a central critique towards the instrumentality of the industrialized world lies in the claim that it has silenced more-than-humans, as well as different groups of humans, in a God-man-nature chain of power and importance (Bennett, 2010; Barad, 2007). Is this true for the three more-than-human actors that were the focus of this study? On the one hand, they can never be silenced since they are always there as prominent features of our everyday life in different ways: through the tap, as newspaper headlines or in the weather forecast. On the other hand, they have been silenced and domesticated in the sense that humans are controlling and utilising them: fire in heat engines for district heating, water in dams for electricity, sun in solar panels for electricity and hot water. In our modern everyday lives, they are built away by technological means. Our houses are meant to shut out the rain but let water in through the tap. They are meant to shield us from the sun (except for letting it in on the front porch), and by being connected to the electricity grid they should compensate us for the lack of light when the sun is on the other side of the planet. And they are meant to keep us safe from fire, either by means of fireproof

material and sprinkler systems or by using other heat sources all together. We, as in people in the technological West, are no longer living *with* fire, water and sun through short connections that are easily overlooked, but distanced from them by long and complex connections in networks of actors too far from us to grasp. This makes us less well-attached (Latour, 2005) than if we were to live with these actors and adjust to the conditions and rhythms they set out for us. Making possible the learning with these actors is a way for friluftsliv education to contribute to a more sustainable world.

In addition to becoming close to the elements, friluftsliv education could also offer possibilities for tuning in to the rhythm of daylight, as shown in the previous chapter. In places without artificial light, there is a need to pay attention to daylight, but also a possibility to experience and become comfortable with darkness which is something that fewer and fewer people do in the electrified parts of world (Eklöf, 2020). Learning about the importance of darkness for both biodiversity and human well-being is a way to create cognitive knowledge, but in order to embody that knowledge into feelledge (Isberg, 1995), students would have to experience a darkness that is swarming with life in contrast to a room where the lights have simply been switched off. This implies that friluftsliv education needs to take students away from artificially lit areas, which should be possible in many parts of Sweden. However, experiencing the full cycle of the daylight rhythm would require an over-night stay, which can be difficult to carry out for many friluftsliv groups, especially in the regular school system (Sandlen, 2015; Henriksson & Karlsson, 2017).

Taken together, this learning with the more-than-human world could enable students to problematize the human/nature division, which might help them understand how to “...harm one section of the web may very well be to harm oneself” (Bennett, 2010, p. 13). In combination with the realization that we constantly affect other actors in an entangled world, this could open up for a transition to a more sustainable lifestyle where more-than-humans are not utilized but treated respectfully and with care. I will elaborate more on this in the next section.

6.3 Learning for what?

Since education is about learning, and learning means change, I claim that learning is always already *for* something. This “something” differs between different subject matters, and in sustainability education there is debate about whether we should educate for certain behaviours or foster skills and attitudes such as critical thinking and openness (Jickling, 1994; Ideland & Malmberg, 2015; Franck & Osbeck, 2018).

This study has not explicitly focused on behavioural change or questions about whether it is more sustainable to go on a hike in the mountains or a bike trip to the coast. During the school visit, I did not

initiate any conversations about life cycle analysis or what brand to choose for new boots. Nor did I ask the students about their knowledge of the carbon cycle, circular economy or environmental justice, even though all of those aspects could easily fit into friluftsliv education. The focus in this study has rather been on influencing people's mental models of the world. This can be seen as the foundation for changing governing systems, networks, patterns of behaviours or single events (WWF, 2016). We can learn what choices to make in a given situation in order to be sustainable, but if a profound change is to occur I believe that individual and collective mental models have to change.

That said, friluftsliv education could bring about change in many levels, from behavioural change to a shift in mental models. Direct encounters with the more-than-human world can contribute to sustainable behaviour (Sandell & Öhman, 2010), and paying attention to the elements could influence behaviour directly, such as choosing not to take the car out in a blizzard saving both fuel and possibly lives. But it could also pave the way for an ethico-onto-epistemology where all more-than-humans are acknowledged and we become more grateful for and humble to their contributions (Wall Kimmerer, 2020; Berkes, 2018). In addition to the possibilities for including more-than-human actors, a friluftsliv education resting on a new materialist worldview could attune to groups of silenced humans that are excluded by for example the discourses of extreme friluftsliv (Backman, 2011b; Lundvall & Maivorsdotter, 2021). By fostering a horizontal representation of *all* actors, also marginalized groups of humans could be included in the learning with the more-than-human world (Bennett, 2010). When people with different experiences of and views on being outdoors meet, paying attention to the needs of all actors could initiate a behavioural change where long journeys demanding specialized equipment are replaced by a simple and accessible friluftsliv education that attunes to the places, elements, stories and more-than-human co-teachers that are always already there (Mikaels, 2018; Morse, 2021; Jukes et al., 2019). In that way, the discourses around extreme friluftsliv could be challenged, which might pave the way for more including activities with less environmental impact. In the next section, I will discuss some important features when planning for and conducting sustainable friluftsliv education as material-discursive practices.

6.4 Setting up a sustainable friluftsliv education

An awareness of the entanglement with more-than-human actors can be didactically addressed in many ways through for example the choice of text books, place and activities. However, a prominent feature of all human endeavours is language (Gee, 2018). Several scholars have noted the possibilities of language, but also the challenges inherent in words and language structures (Gough, 2014; St. Pierre, 2018). One example is that the grammatical structure of languages such as English and Swedish are forcing us as speakers and writers to assign subjectivity and objectivity in the creation of sentences. Grammatical subjects and objects are also by rule nouns, which means that speakers of those languages

are nudged into thinking about the main components of the world as bounded and separate objects, instead of focusing on movement expressed by verbs (Gough, 2014; Wall Kimmerer, 2020). This makes it difficult for us to speak about the world while at the same time rejecting the separation of "...speaking subjects and mute objects" (Bennett, 2010, p. 108). In contrast, there are Indigenous languages that to a larger extent are built on relational words and verbs which means that their structures carry possibilities for speaking about the world in more entangled ways (Gough, 2014; Wall Kimmerer, 2020). If language is viewed as our apparatus for measuring the world, and phenomena are determined by their measuring device (Barad, 2007), then English and Swedish are prone to intra-act a world that is fragmented and full of unrelated objects. Hence, it becomes important to acknowledge words as actors in the material-discursive practices of diffractively constituted boundaries (Latour, 2005; Barad, 2007).

If friluftsliv education is to help acknowledge the material-discursive and entangled quality of the world, one implication is that friluftsliv teachers must be attentive to what marks on bodies different words or grammatical constructions take part in enacting. A language of separation, power and anthropocentric dominance might contribute to stabilizing patterns of difference that silence large parts of the world. Education is important by being a part of everyone's life for a substantial amount of years, therefore the possibilities of education to influence discourses are not to be underestimated (Kahn, 2010). Important questions for friluftsliv teachers to ponder upon might then be what words and sentence constructions they are using when talking about more-than-human phenomena, what agential cuts those words and constructions are a part of enacting, what is excluded from mattering in the narratives used, and what marks on which bodies those narratives leave. By paying attention to and problematizing the language we use and the narratives we recreate, other stories where a diversity of voices are heard can be made possible, as shown in previous studies by for example Jukes and Reeves (2020) and Morse (2021).

Another central aspect of education is the planning of activities, i.e. what to do, why and how to do it. The vignette with the burning canvas in the previous chapter is an example of how an activity enabled knowledge to deepen into embodied being-knowing, feelledge (Isberg, 1995). When the teacher had explained what could happen with the canvas if the frayed edges became too hot, the students gained a cognitive knowledge about it. However, when they came back from the break and could see, touch, smell and not least emotionally feel the agency of the glow-canvas-canoe intra-action they learned with the more-than-human actors, a learning that continued through the repair work that had to be done. This experience became a materialisation of the phrase "learning from your mistakes", and an implication for teachers of friluftsliv education could be to consider under which circumstances possibilities might be created for students to gain embodied learning from when things go wrong. In other words, how can mistakes and failure be allowed to enter the learning assemblage? What does this mean for the planning, preparations and setup of friluftsliv education? The answer could again be the notion of wild pedagogies

(Jukes & Reeves, 2020), where wild does not mean reckless but rather open to the unknown and to letting “others” in as co-teachers. One example where learning from mistakes was bordering on dangerous though, was the fire in the tipi. In this particular case, catastrophe from a human point of view was avoided and instead learning took place. However, a situation like that could easily have turned into a disaster with injuries on more than canvas and wooden poles, which might have implied destructive learning rather than creative learning as was luckily the case this time. Along with the examples regarding the sun-snow rhythm in the mountains, this shows how danger is always present when dealing with the elements (Cohen & Duckert, 2015), which will need to be addressed in friluftsliv education. This could be accompanied by conversations of when and if we should attempt to control the elements and when to adapt to the conditions they intra-act. In this way, post-normal learning (Wals, 2012) *with* the elements can be made possible.

The idea that learning is always already in movement can be challenging when it comes to institutionalized education, especially in the folk high school setting where there is no grading and therefore the learning is not assessed in an explicit way. For students, this can at times be difficult when used to the regular school system where learning is more formalized in lessons, criteria and grades. During a conversation in the mountains, the teacher and I reflected upon the fact that their students sometimes complained about having the feeling of not learning anything. By that they meant that there were no regular lessons or means of checking what they had learned. The teachers’ pedagogical idea was that the students were learning by doing, meaning that they were *living* the learning instead of *talking* it. During my time with the course, this could be seen in that the teachers often stayed in the background. On some occasions they went through an activity or initiated a meeting, but then they stepped aside making way for the doing, for things and events to unfold. The dissonance between teachers’ ideas and students’ expectations had also occurred in relation to sustainability, when students sometimes asked for explicit lessons about sustainability, while the teachers’ meant that they were living sustainability throughout the course by for example including handicraft so that they could mend and reuse equipment, or by taking a holistic approach to a journey where everything from food and movement to evening gatherings with songs and storytelling were included. In these examples, the teachers could be said to focus more on feelledge (Isberg, 1995) while the students asked for explicit knowledge. The teachers’ idea of friluftsliv education was more about learning in an assemblage of trying-failing-trying-again-succeeding which took place all the time, meaning that it was not bound to a classroom, a lesson plan or a schedule. This can again be related to the concept of wild pedagogies where teachers open up for unexpected and unplanned learning to take place (Jukes & Reeves, 2020). But in situations like this, human communication is also important for helping students gain an understanding of embodied learning; both the material *and* the discursive parts are needed.

A major implication of reconfiguring Swedish friluftsliv education as material-practice is that students have to intra-act with their bodies and the material bodies of that which is the learning objective in order to learn *with* and not *about* that particular phenomena. This requires teachers (as well as the rest of the educational setting) to allow students to *do* instead of simply listen to an explanation or, like the example from the PEH curriculum of learning how to light a fire without actually lighting the fire (Backman, 2018), account for in words what they *would have* done. Moreover, despite the problems connected to extreme friluftsliv, the results of this study indicate that all friluftsliv students should, at some point, have the experience of being outdoors (preferably away from artificially lit areas) for at least one full day-night cycle. This does not have to be done in remote and challenging places, and since Sweden is not very densely populated, this should be able to arrange at most schools. I acknowledge that this requires more equipment and resources than small-scale outdoor experiences, which can be challenging for some schools to provide. However, there are promising initiatives such as Fritidsbanken (2022), where students can borrow equipment, and many larger cities have friluftsliv areas nearby (Sandell & Sörlin, 2008), which means that there are structures in place that might make this possible even if the economic resources of the school should be scarce.

6.5 Summary

Throughout this chapter, I have discussed the findings and argued for how Swedish friluftsliv education can contribute to a more sustainable world. I have especially emphasized the possibility for learning with the more-than-human world through wild pedagogies and an awareness of the use of language. In the next chapter, I will sum up this discussion in a conclusion and then bring up some critical reflections on this study and suggest how further research can address the gaps it is leaving behind.

Chapter 7. Conclusion and further research

In this final chapter, I will sum up this research project into its major conclusion. I will then discuss some limitations and suggestions for further research before making some final reflections and letting this text come to a close.

7.1 Conclusion

The main conclusion of this study is that, by being configured as material-discursive practice, Swedish friluftsliv education can create a space in which learning with more-than-human actors such as fire, water and sun becomes possible. This may lead to an embodied understanding of the entanglements between humans and more-than-humans that are always already there. In this way, Swedish friluftsliv education can contribute to a more sustainable future by challenging the anthropocentric human/nature divide and bring forth a reality swarming with connections and relations where the voices of those silenced by human dominance can once again be heard. This may inspire students to behave more respectfully towards the human and more-than-human “others” with whom they share the world.

This conclusion echoes those of earlier studies of outdoor education within a new materialist framework who claimed that outdoor education was suitable for opening up spaces in which students could respond ethically to places and their inhabitants (Mikaels, 2018; Morse, 2021; Vladimirova, 2021; Mycock, 2020), silenced stories (Jukes & Reeves, 2020; Morse, 2021; Vladimirova, 2021) and the co-teaching of more-than-human others (Mannion, 2020; Morse, 2021; Jukes et al., 2019). Together with these studies, this research contributes to a possible reworking of that outdoor and friluftsliv education which is resting on a division between nature and culture (Gruno & Gibbons, 2022; Klaat & Öhman, 2014; Harju et al., 2021), enabling it to transform into an education that puts learning for sustainability as its main goal (Mikaels, 2018).

A major implication of this conclusion is that friluftsliv education needs to be conducted outdoors in less human-controlled areas and allow students to *do* things instead of only talking or reading about them. This study has shown that by setting up situations where students can fetch water from a stream, gather around a fire, make and repair equipment, walk on snow under different conditions, etc., learning can be embodied into feelledge. By intentionally attuning to more-than-humans and then initiating critical dialogue about the events that are unfolding, teachers and students can co-create a deeper understanding of concepts such as spacetimematter, well-attached, agency, responsibility and not least of the material-discursive entanglements between humans and more-than-humans.

7.2 Limitations and suggestions for further research

One of the major agential cuts of this research apparatus was made through the choice of what school to visit. By choosing a folk high school course, I entered a setting where there is no grading or testing, adult students, no other subjects, students living at the school and no central curriculum, to name but a few ways in which it differs from for example the regular school system. The main feature guiding folk high school education is a pedagogical idea which is in itself holistic (Sveriges folkhögskolor, 2022a), meaning that the step to viewing it as material-discursive practice is not that big. Also, in conversations with the teachers, I realized that the particular course I visited was based on an idea of *friluftsliv* and the world that was very close to the new materialist lines of thinking that I had engaged with. Taken together, this meant that the structural basis for conducting *friluftsliv* education configured as material-discursive practice was already in place. I acknowledge that many of the possibilities that I have discussed in the previous chapter might be substantially more challenging to create in for example the regular school system. A suggestion for further research is to investigate which perspectives from this study can be implemented in Swedish *friluftsliv* education in other school systems, what possible challenges arise and how they might be handled.

An important critique of this study in relation to previous research on Swedish *friluftsliv* education is that it is partly reproducing the discourse of extreme *friluftsliv* where students have to be taken to remote places for several days, something that is not possible for many *friluftsliv* teachers with limited time, space and resources (Backman, 2011b; Sandlen, 2015; Henriksson & Karlsson, 2017). Given that many of the vignettes that exemplify the findings were situated in the mountains on a six-day journey, it is relevant to ask the question of whether learning with fire, water and sun in the ways that I have argued for can be made possible by a secondary school PEH teacher in a city school. I suggest this question to be investigated through further research.

As mentioned in chapter three, a review of previous research inevitably means agential cuts excluding some things from mattering. Due to limitations in time and space, the research review cannot be said to completely cover all perspectives on outdoor and *friluftsliv* education, and a suggestion for further research is to look into what knowledge has been produced from the perspectives of for example critical animal pedagogies, human-nature intra-actions in urban settings, or early childhood education and see how this body of knowledge might inspire to new materialist (or other) research projects about a sustainable outdoor and *friluftsliv* education.

In a post-qualitative inquiry, the researcher is an actor among all the others, and should not be invisible in the same way as other research methods might strive for. Rather, the researcher is sometimes even put in the centre of attention, especially in the view on analysis work as a conversation between the

researcher and the empirical material (Gunnarsson & Bodén, 2021). My intention in this study was to attend to the entanglements between humans and more-than-humans in Swedish friluftsliv education. However, by focusing too much on the more-than-human actors and on my own relation to the empirical material, I sometimes made the students and the teachers unnecessarily silent. This is a risk when attempting to go beyond the human, resulting in a loss of that perspective and a poorer account, especially from an educational point of view. My suggestion is to complement this study with further research using other methodologies such as interviews or focus groups where the human voices of the material-discursive entanglements in Swedish friluftsliv education can be thoroughly heard and accounted for.

7.3 Concluding remarks

The new materialist framework that runs through this research project means a deviation from many dominating discourses around sustainability and education for sustainable development. By treating the world as entangled and relational, I contest the separation into different categories such as economic, ecological and social sustainability. If the world is an ongoing material-discursive practice, there is no need for categories like that. This does not mean that I think it unnecessary to address economic injustice, environmental degradation or power imbalances, quite the opposite. But this has to be done by tracing the undesirable networks of connections between human and more-than-human actors that are kept stable in order to destabilize them (Latour, 2005). This work is the same regardless of whether it is about poverty, access to clean water or saving polar bears. However, the departure from sustainable development discourses carried by the United Nations and other organisations rooted in the West is not only due to new materialism but also to my own convictions and other critical texts that I have read, especially Gough (2014) and Kahn (2010). Even though the conventional discourses around sustainability carried by policy documents like “Our common future” (WCED, 1987) and “Making peace with nature” (UNEP, 2021) contain many important and urgent messages, I believe that the narratives they convey are insufficient when it comes to fostering humanity’s ability to be humble and step back to let other voices be heard. Just like Cohen and Duckert (2015), the notion of humans as saviours of the world is not the path that I advocate, which I hope this text has made clear. Nonetheless, If I am to be true to the perspectives that I have brought to the fore, the answer to complexity is multiplicity, and a variety of paths must be advocated. In any critical endeavour there is the risk of tipping over to “the other side” and not being able to dwell in the middle of either-or. I criticize the instrumental narratives in conventional sustainability discourses, but must be cautious not to be blinded by discourses in which nothing can be talked about or agreed upon because everything is messy and uncertain. I criticize the anthropocentric focus of international policy documents, but must be cautious not to diminish humans into mute background figures. I criticize positivist science for producing

fragmented and cognitive knowledge, but must be cautious not to dismiss the many advantages of systematic and abstract human thinking. The central message, and the huge challenge, of a new materialist worldview is to truly take *all* actors into account and grant them the same possibilities to be seen and heard. In other words, I want to avoid placing my way of viewing the world *above* others. Aligning with the new materialist worldview, my ambition has rather been to place it *beside* others, acknowledging the need for diversity and co-creation.

However, it is important to once again recognize that this research project has rested on my assumption that connecting to and learning with the more-than-human world is a desirable way to move forward. In that sense, I am advocating that friluftsliv education should indeed be *for* something, while at the same time I believe in a post-normal approach to education where diversity, complexity and co-creation are emphasized. At the heart of this standpoint lies several ethical questions around what it means to be human. Should we adjust our surroundings or adjust to them, and what do those different standpoints imply for a good life? Could we allow ideas about the human-nature relationship to differ. On what can we have different opinions in a pluralistic, yet coherent, society? How can we live with the fact that other people have other, sometimes directly opposing, ideas of how to be a human? If we approach these questions and each other with empathy, respect and curiosity, then I believe there is a chance that education in general, and friluftsliv education in particular, might foster the kind of citizens that could change the world for the better. Still, I acknowledge and take full responsibility for the fact that my own version of what that “better world” looks like has influenced the research process in every step of the way.

7.4 End note

This text has now come to an end, but the world keeps spinning. In millions of intra-actions and connections swarming with life of all kinds, that-which-we-call-reality is constantly changing and evolving, contested and reworked, affected and affecting. All we can do is to dwell in the material-discursive entanglements in which we find ourselves while at the same time trying to pay attention to where their agency is leading, assessing whether that is a desirable direction or if it needs to be resisted. This is not an easy task. But it is a task that we are bound to bear whether we want it or not. And once in a while something glimmers. A word, a movement, a sensation. The drop of water hanging from the tip of a straw, or the small gap in the clouds allowing the evening sun to set the sky on fire. Suddenly the world is beautifully breath-taking and we are given the energy needed to take another step, and another and another until we are once again on the path leading us towards something else. Or perhaps back to where we always already were?

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Appendices

Appendix 1, Practical and ethical information for consent

Information till deltagare samt informerat samtycke

- ✓ Studien ingår i masterprogrammet *Education for Sustainable Development* vid Göteborgs universitet
- ✓ Syftet med studien är att undersöka hur svensk friluftsupervisning kan förstås som materiell-diskursiva praktiker. Jag ber därför om att få besöka er grupp och delta på heltid i er didaktiska vardag under en eller flera av veckorna 10-14, vårterminen 2022. Deltagande i studien är helt frivilligt. Studerande som av någon anledning vill avbryta projektet tar upp detta med berörd lärare eller rektor. Denna har då rätt att när som helst, och utan förklaring, avbryta besöket.
- ✓ Studien genomförs med en postkvalitativ ansats vilket innebär att metoder för insamlande av empiriskt material, typ av empiriskt material som samlas samt analysmetod utvecklas i interaktion med deltagarna. Detta innebär att ytterligare samtycke för till exempel förtydligande intervjuer eller gruppsamtal kan bli aktuellt. Deltagande i dessa är helt frivilligt och samtycke samlas in vid tillfället. Dialog om etiska aspekter kring specifika situationer kommer att hållas med berörda deltagare om behovet uppstår.
- ✓ Jag är olycksfallsförsäkrad via Kammarkollegium under hela besöket. Jag ansvarar själv för tillgång till all eventuell utrustning som behövs för deltagande i gruppens aktiviteter.
- ✓ Efter genomfört besök kommer jag att skapa en skriven redogörelse. Denna kommer efter godkännande att publiceras offentligt via Göteborgs universitet.
- ✓ I slutrapporten kommer inga uppgifter att anges som kan vägleda läsaren direkt till en specifik kurs på en specifik skola. Individuella deltagare kommer att anonymiseras i såväl slutrapport som eventuella transkriberingar av ljudfiler.
- ✓ Personuppgifter/empiriskt material som medger att specifika individer kan identifieras kommer att förvaras lokalt och endast vara tillgängligt för mig. Arbetsmaterial utan personuppgifter kommer att förvaras i molntjänst. I händelse av eventuella intervjuer har deltagare rätt att ta del av transkribering. Skolan har inte rätt att ta del av arbetsmaterial i form av anteckningar och utkast till redogörelse. Insamlat empirisk material kommer endast att användas i forskningssyfte kopplat till denna redogörelse. Skulle jag önska använda materialet för framtida forskning kommer nytt samtycke att inhämtas.
- ✓ Berörda lärare erbjuds att läsa och kommentera redogörelsen innan slutlig inlämning. För återkoppling av projektet erbjuds ett återbesök till gruppen efter att slutrapporten är inlämnad. Färdig slutrapport kan mailas eller skickas med post till deltagare som önskar det.
- ✓ För frågor eller önskemål kring projektet, kontakta: Karin Isaksson, gusisakac@student.gu.se, 070-3329402

Jag har läst och samtycker till ovanstående

Signatur:

Namn och roll på skolan:

Datum: