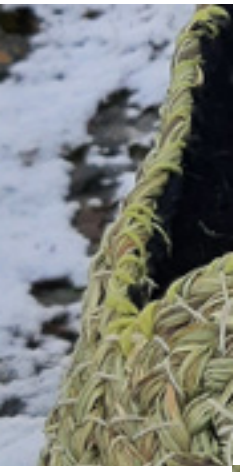

Understanding Landscape through the Interconnection of Different Forms of Knowledge

Three Examples from Living in the Landscape 2021

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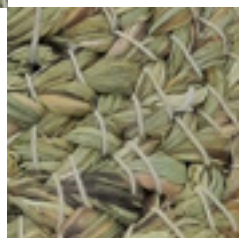

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The *Arctic sustainable Arts and Design* (ASAD) network has developed and initiated international and interdisciplinary "Spring/Summer Schools", Living in the Landscape (LiLa), where the goal is to bring together masters and PhD students from different disciplines to develop culturally sensitive and sustainable research on the sociocultural dimension of the Arctic and sub-Arctic landscape. The Faculty of Teacher Education, Art and Culture Studies at Nord University was a partner institution in LiLa 2021. The students and researchers who participated in LiLa 2021 came from institutions in Finland, Russia and Norway that are responsible for art education, art and design education and for teacher education, including science, arts and crafts and music.

The development of a multidisciplinary educational and scientific collaboration through the LiLa project was designed to meet the emerging challenges related to environment, population and economic life in the Arctic and subarctic region through multidisciplinary and artistic approaches (Jokela & Härkönen, 2021). The practices aimed to create encounters and dialogue between traditional forms of culture and contemporary practices and discover how these could be presented through art (Härkönen & Stöckell, 2019).

Outcomes of the school consisted of several parts: a physical product that was part of a digital exhibition (Härkönen et al., 2021 and digital exhibition https://storymaps.arcgis.com/stories/345326b826054361a50905c6d92a6b56) and starting point for a visual essay.The essay (published in Härkönen et al., 2021) forms an essential part of the holistic art-based expression, where process and associated reflection emerge.

In this chapter, we will reflect on three examples which describe the holistic understanding of landscape through an interconnection between both natural science knowledge and cultural/art-based aspects. In this way, we will shed light on how the synthesis of these different forms of knowledge contribute to our understanding of landscapes and materials, and why this understanding is essential to illuminate how we can meet today's ecological challenges from an eco-cultural sustainability perspective.

Theoretical Grounding

Landscape

Art and culture are man-made, and from that point of view we are rooted in a purely human-centric worldview. If we perceive the landscape as a culture and a carrier of culture in relation to traditions and resources for materials, we are moving in an anthropocentric paradigm. In an eco-centric paradigm, the landscape is understood as nature or as an ecosystem, and is about "how nature works" which, according to Cohen (1989) in Sauvé, 1996, "allows us to interact with it in an appropriate manner, so that nature is appreciated, respected and preserved". In the natural sciences, humans are understood as a species that is an integral part of nature and landscape, living in interaction with and in a mutual dependence with both biotic and abiotic components.

To understand the landscape as a whole, we must move away from a basic worldview that puts man exclusively at the centre, in favour of a view of man as an integral part of the world on an equal footing with animals, plants, objects and other life forms (Illeris, 2017). The landscape is an interconnection between cultural and ecological aspects where different knowledge shapes our experience. In the landscape, nature and culture, the scientific and the cultural meet and Ingold (2020a, p.15) states:

> it should now be clear why natural science and cultural anthropology converge on a common vertex. The anthropological claim of perceptual relativism – that people from different cultural backgrounds perceive reality in different ways since they process the same data of experience in terms of alternative frameworks of belief or representational schemata – does not undermine but actually reinforce the claim of natural science to deliver an authoritative account of how nature really works.

Both culture and nature are dynamic and constantly changing. According to Ingold (1993), it is also more productive to look at the landscape as temporary and as a process that is constantly transformed by the activities performed by the organisms, dwellers, that are present at all times. This combines the scientific and the artistic approach to the landscape in a more holistic way and on non-humanistic premises. This concept, that Ingold calls a *Taskscape* is used in LiLa.

Material

In the culturally man-made world, materials appear as a resource we humans can use for various purposes. Also for arts and crafts, materials appear as primary resources with

certain characteristic properties and qualities. Most materials used in creative processes in arts and crafts come from a natural resource - a raw material (Näumann et al., 2020). In our context, the value of the materials is determined on the basis of what use it has for an artist or craftsman, ie. on human terms. Knowledge of the materials' properties and qualities are important when the aesthetic products are made. As an environmental sculptor, Andy Goldsworthy stated that "We need to shake hands with the material to fully understand it" (Goldsworthy, 2004) . This reflects his method to invade a setting and use his perceptions of nature in art-making, bringing natural materials like twigs, stones, leaves and water into conversation with natural forces like sunlight, wind, tide, and time.

As a reaction to anthropocentrism, eco-philosophers argue that we have direct responsibilities to natural objects such as animals, plants and landscape (Jakobsen, 2017).

In a post-humanist and new-materialist paradigm, natural science appears as eco-centric and looks at the intrinsic value of materials. Materials and organisms, living and non-living, are explored in relation to their chemical composition, structure, development and the interaction between materials/organisms in different natural cycles. In living organisms, physiological processes, behaviour and the interactions they have with each other are also explored: Is the relationship neutral, symbiotic or parasitic? This also includes man as an organism in line with many other materials and organisms.

In Arctic and sub-Arctic regions, the link between nature and culture is strong. This relationship can be described with the term 'eco-culture'. Knowledge based on eco-culture includes both traditional knowledge, ecological knowledge, indigenous knowledge, tacit knowledge and local knowledge. As the eco-philosopher Arne Næss puts it, an increased understanding of us humans as a way of life in line with others will strengthen our presence in the world:

> The greater understanding we have of our coexistence with other beings, the greater care we will show. Thus, the way is also open for joy over others' well-being and grief over their death and depravity: We seek our own best, but by self-expansion we thus also seek for others. (Næss, 1991, p. 278)

Eco-Cultural Sustainability

Cultural sustainability deals with people's relationships to each other and their attitudes towards the environment (Härkönen et al., 2018; Stoltenberg, 2020/2010; Soini & Dessein, 2016). What has been created must be accounted for, and from a cultural sustainability

perspective it is important that we create a relationship also with the consumer culture. In this process, people can be innovative and influence the future with forward-looking ideas and values. The cultural sustainability perspective focuses on the local community's ability to continuously adapt to changes over time, at the same time as the culture lives on by acknowledging the culture's perspective, memories and ways of expression.

It is central to maintain and reflect on cultural traditions and practices as consumption patterns and environmental practices. In this discourse, one tries to find an answer to the question of whether our current cultures will be able to exist in the future (Soini & Birkeland, 2014). The same applies to nature and ecosystems and therefore Pedersen (2021) suggest a redefinition of "the social" in social sustainability where the inclusion of human-animal relations are necessary. Cultural sustainability is site-specific, i.e., each locality must evaluate its needs, rights and responsibilities in order to live more sustainable lives (Härkönen et al., 2018). The place helps in building identity, and can lead them to feel a stronger sense of belonging and motivation to take care of the place by giving ownership to issues in their own community (Sørmo et al., 2019). Therefore, we need to experience the world in reality (Jokela & Coutts, 2018). Eco-culture focuses on the experience of culture, local environment and interactions between nature and people both before and now and can contribute to people becoming happy in both nature and culture.

Methods

In this article we extracted emerging themes from our three narratives, to shed light on the interconnection between natural science knowledge and cultural/art-based aspects to better understand the materials and landscape. Narratives allow us to express and comprehend individuals, cultures, historical periods and societies in the round (Richardson, 1997). The visual essays (published in Härkönen et al., 2021) appear as narratives and form an essential part of the holistic Art-Based Expression (ABE) where, through narrative inquiry, process and associated reflection emerge (Leavy, 2015).

Results: Three Art-Based Expressions (ABE) in Dialogue with Landscape.

ABE highlights process and the associated artistic product. The emerging themes are how we understand the landscape, how we explored three different organisms/natural materials, and how the ABEs are eco-cultural anchored.

ABE 1. The Fishermen's Mittens of Helgeland, Mette Gårdvik (2021)

This ABE concerns a community art project (Austin, 2008) that invited the participants of LiLa 2021, to cross borders by the art of knitting a pair of Fishermen's Mittens made from wool. With its special properties, wool is a unique natural material that is insulating and warm even when it's wet. Wool from the Old Norwegian Short Tail Landrace sheep breed has good insulating properties and was considered the best wool for the mittens. It consists of soft bottom wool and long, straight coat hair. The long, smooth cover hairs are water-repellent and the garment is strong at the same time as it retains heat. The participants were given an opportunity to wander from the coast of Helgeland, Northern Norway, and into the history of the fishermen's struggling life through their own contemporary experiences of knitting, felting and making a pair of mittens.

As dwellers (Ingold, 1993) in the arctic landscape, we are all connected through tradition and our memories can relate to cold hands and a warming pair of mittens. My

Figure 1: Image 1, 2, 3, series. Fishermen's mittens were once one of the most important part of the work attire of fishermen along the Norwegian coast. When fishing in Lofoten, it was common practice to have a portrait of either your crew or yourself. The painted photography backdrops were a standard feature of early photography studios (1860 – 1920). All the fishermen are wearing the special home-made mittens. Photographs: Digital Museum.

Figure 2: Image 1, 2, 3 series. Wool from Old Norwegian Short Tail Landrace sheep is traditional used in making Fishermen`s Mittens. Reconstruction of old mittens with embroidered initials (in Helgeland Museum). Old Fishermen's Mittens hanging in a boat-house on the Lovund island. Photographs 1, 2 & 3: Mette Gårdvik.

Figure 3: A selection of mittens knitted during the LiLa School 2021. Photograph: Mette Gårdvik.

landscape concerns the wellbeing, enjoyment and ownership of a good pair of knitted woollen mittens, and especially the process of making them. The nature, the materials, the technique and the tools, and the simplicity of making a functional object of only some yarn and knitting needles, creates a holistic approach to my own private *taskscape* (Ingold, 1993).

> It combines the beauty, the tradition and the contemporary of the Arctic together. We carry them in our hands, affecting our doing in the wintertime which, as you tell us, has been taken into account in making the appropriate mittens for the fishermen. (participant).

ABE 2. Grass Shoes – A Walk in Landscapes, Karin Stoll (2021)

This art-based expression, both the product and visual essay, highlights the cultural sense of sustainability, where the biological diversity of the landscapes represents natural materials that has inherent and traded knowledge.

Excerpts from the visual essay:

> As a four-year-old girl living in Bavaria, Southern Germany, I often wore my grandmother's slippers made of grass. I loved the shoes and the smell that reminded me of summer. Later, I realised that these were shoes people could make themselves using free materials from nature.

The tradition of using natural materials such as bark or grass to make daily life utensils and equipment is no longer visible in modern societies in Southern Germany, and much crafting knowledge related to this is gone. As a biologist, I have gradually become more aware of the importance of taking care of materials and older, inherited knowledge as a part of the landscape around us. In my movement between cultures from Southern Germany to Northern Norway, I became aware of how valuable knowledge about using natural materials is. From a cultural sustainability perspective, cultural heritage is one of its main building blocks in developing cultural identity (Friedman, 1994).

In addition to my childhood memories, I interpreted and decoded pictures of the shoes and watched YouTube videos of the making process (Bayerisches Fernesehen, 2017; Hola, n.d.). For wrapping the grass braid to form the shoes, you need a pair of *shoe lats*. *Shoe lats* were a common part of the households in Helgeland since making "Svartlugger", a homemade winter shoe, was a necessity for members of the family.

Figure 4: Bavarian Grass Shoes in the Landscape of Helgeland, Northern Norway. Photograph: Karin Stoll.

Figure 5: Image series 1, 2. Shoes of the iceman "Ötzi", His shoes consisted of a shell and sole of bear and deer skin, a skeleton of linden bark and dried grass and sedges that were used as insulation (Image 1) (O'Sullivan et al., 2016), something we also know from traditional Sami shoes, called Skulls. Photograph 1: © Südtiroler Archäologiemuseum. Traditional Sami shoes, Skulls. Photograph 2: Sara Lien.

Figure 6: Image series. The Quaking Sedge Carex brizoides was harvested for making mattresses, furniture and shoes in Bavaria, South Germany in the 19th century. Photographs: Kreisbildarchiv Lkr. Augsburg.

Figure 7: Image series 1, 2, 3. Carex brizoides, the quaking sedge is native to Central and Southern Europe. The stem is triangular and thin and can grow up to 40-100 cm long. Photograph 1: J. G. Sturm, Painter: Jacob Sturm. Carex brizoides which was traditionally used to make shoes and grows in the forest in South Germany does not exist in Northern Norway, and I had to find an alternative material for making the grass shoes. The Sami people use Carex rostrata, the bottle sedge, for insulation in shoes wich is native to the Holarctic. Photograph 2: Nordens flora. Cross section of a sedge. Photograph 3: Stefan Lefnaer.

The combination of my natural science knowledge about anatomic and physiological properties of sedges and the practical experiences from working with this material/organism was useful for understanding why sedges are (still) used in shoe making. At a cellular level, the air-filled pockets in the stem tissue will contribute to both isolation and regulation of moisture (Figure 7). Compared with real grass, the sedge stems have no nodes and are smooth and flexible. Therefore, sedges will not break in the braiding process and remain strong enough to make shoes. According to Ingold (1993), my *taskscape* gained experience with, and new knowledge about, my co-dweller, the arctic sedge species *Carex rostrata*, as both an organism and a material to make traditional Bavarian grass shoes. I was not aware about how important these shoes are for my own identity.

Figure 8: Image series showing the making process. The whole process of making shoes from grass is a multi-sensory experience: the dried sedge has a light gray-green colour, and at the same time it is smooth and strong and smells fresh, with a hint of lemon. When working with it, it is rustling and feeling like hay. Photographs: Karin Stoll.

The meditative way of working and the smell of the rush awoke memories of the warm summer days when I harvested the rush and of my grandmother and her grass shoes. Bavarian grass shoe making in Northern Norway is like walking between cultures and being deeply connected to both of my landscapes.

ABE 3. The Precious Eggs of the Eider Duck, Wenche Sørmo (2021)

This essay presents the process and reflections on making wooden eggs to help the vulnerable eider duck, which is an important species for the local cultural heritage in Helgeland.

Excerpts from the essay:

> I was born and raised on a slightly remote and rural farm which is located at the outlet of a small fjord, called Straumen (the Stream). I was exposed at a young age to

all kinds of nature and landscapes in my local area and being outside was a natural part of everyday life.

Ingold (1993) describes landscape as opposed to *taskscape* and explains what he puts in the term "dwellers". Being "dwellers" includes all living organisms in the landscape and their activities that contribute to "*taskscape*", with its sounds, smells, movements and tracks, that can be perceived and which are important as part of the whole of the landscape.

The eider duck is considered a domestic animal along the coast of Helgeland in Northern Norway and for centuries people have guarded nesting eider ducks in order to harvest the down to make duvets and collect eggs to eat. The camouflage coloured female lays 5-6 eggs over a period of one week, before she begins to incubate the eggs

Figure 9: The old and worn out wooden egg, made by my father 25 years ago. Photograph: Wenche Sørmo.

Figure 10: Image series 1, 2. The eider duck female incubating her eggs in the perfect nesting place under my saw mill. Photograph 1: Wenche Sørmo. The laborious work of down cleansing. Photograph 2: Wenche Sørmo.

(Figures 2 and 3). When my grandparents bought the farm in 1947, about 160 pairs of eider ducks nested there. They guarded the birds by replacing the first egg with an artificial wooden egg. Since I took over the farm more than 20 years ago, I have been worried about why fewer birds are nesting here. The reason for the decline is said to be a more active and disruptive *taskscape* from the point of view of eider ducks, especially during the vulnerable breeding period (Hanssen & Erikstad, 2012).

The down was harvested after the eider duck had left the nest with the young ducks after 23-25 days of incubation. The female farmers collaborated on cleaning the down after each season (Figure 10, series 2). This was dusty and laborious work, but also a social activity to which they looked forward (Elstad, 2004; Klausen, 2013). The down from 60-70 eider duck nests was needed to make a single duvet, but the result of the hard work was the lightest and warmest down duvets for your own use or to sell. The eider down has unique properties like extraordinary cohesion, elasticity, resilience, "breathability" and temperature-regulating effect that are not found in many other materials (Carlsen, 2013).

The idea for the artwork and making of eider duck eggs emerged when I discovered that I only had one old and worn out wooden eider-duck egg left (Figure 9). As a co-dweller with nesting eider ducks, I feel responsible for helping the birds to succeed in the breeding season. I made copies of eider duck eggs from wood (1: 1 size) and painted them with an environmentally friendly paint. The eggs have a string attached to them with a long nail at the other end, so that the nail can be inserted deep into the nest after I have removed the birds' first egg.

Figure 11: I had the lathe in my workshop at the farm where I also found the piece of wood. I asked my father to help me make some new eggs. My father shows me how to use the lathe to make the new wooden eggs. Photograph: Wenche Sørmo.

Figure 12: Image series 1, 2. The wooden eggs in an eider-ducks nest. Photograph 1: Wenche Sørmo. Eider ducks nest with authentic eggs. Photograph 2: Thomas Holm Carlsen, Nibio. https://www.nibio.no/nyheter/rfuglevokterne-er-naturens-vaktmestere.

The process of making new wooden eggs demonstrates the necessity of repeating the *taskscapes* of different generations living in the same landscape at different times (Figures 9, 11, 12). The eider ducks are the same and have the same needs as they did 74 years ago when my family moved to this coastal farm in Helgeland. People also have the same basic needs, but have changed their ways of living by making life more easy and comfortable for themselves, at the expense of other species. It feels somehow good to help a fellow dweller, but I worry about the future for sea birds.

I harvest a valuable natural product that, in the long run, can be used in a locally produced down duvet which can be passed on to the next generation. With my knowledge about the species and my *taskscape* tradition of caring for the eider ducks, together with the trade skills in crafting wooden eggs, I can contribute to pass on the local cultural heritage. My contribution as a dweller will hopefully help maintain the *taskscape* that has been present on my farm for centuries.

Discussion

The Eco-culture of Landscape

During LiLa (2021), we were inspired by Ingold's (1993) article about the temporality of the landscape, working in our own landscapes that have changed with the concept of the *taskscape*. Tim Ingold's (1993, 2020a) understanding of *taskscape*, dwelling/co-dwelling provided guidelines for participants' choice of content related to their relationship to their own daily landscape. We see variation in the use of art forms, but common is the reflection on the landscape, its temporality, its significance as a bearer of knowledge and an understanding of identity and belonging. *Taskscapes* were culturally rooted in coastal culture and linked to different cultures and craft traditions. A post-humanist discourse that was expressed in all the artistic expressions was about how the landscape could be understood through non-human experiences.

From Gårdvik's ABE1 we realise that there are no landscapes without organisms and no organisms without landscapes and we humans are only a small part of this whole. The cultural landscape has an ecological, traditional and cultural significance that is threatened because the material wool has become less valued in the modern and more industrialised world.

In ABE2, Stoll lifts the crafting tradition of grass shoe making and its significance for forging close ties between nature, different cultures and one's own identity in different landscapes.

Sørmo views the eggs and the eider as a biologist in ABE3, and equates humans and the eider as dwellers in a common cultural landscape, where both have utility value for each other in a form of symbiosis. This reflects an eco-centric view of the landscape where the focus on "how nature works" and the interaction between humans and nature is prominent (Cohen (1989) in Sauvé, 1996). As a farmer, she is aware of her own role as manager of both the landscape and an important tradition in relation to the eider on the farm where she grew up. The culture of "taking care of" eider ducks is therefore part of her being in the world.

However, the interconnection between ecological and cultural aspect is also intensely and especially visible in our 3 examples. An interdisciplinary view of both organisms and material and how these characterise our connection to landscape were important messages in the art-based expressions, to overcome the divisions between culture and nature as well as human and non-human. In this way, rooted in a post-humanistic and new-materialistic way of exploring, learning and thinking (Barad, 2003; Friedmann, 1994; Ingold, 1993), we show how we constructed knowledge through making and inspired discussions and cooperation across generations in our different landscapes. The experience of the landscape as a *taskscape* where the dwellers live their lives and perform their tasks can be linked to Ingold's (2020a) description of the landscape as an inter-connection between cultural and ecological aspects where scientific and cultural forms of knowledge. We gained a deeper insight into eco-culture of the subarctic landscape.

Materials and Eco-cultural Sustainability

The focus on knowledge of the natural materials, to understand how and why they can be used to strengthen our presence, is visible in all of the ABE`s. The non-anthropocentric philosopher Abram (1997), said that " We must expand our values and our moral considerations to include the non-human world" (in Jakobsen, 2016). The materials were used with respect and caution, something also the eco-philosopher Arne Næss, (1991) was concerned with, and they can be seen as natural materials or organisms, but also as cultural material or culture carriers:

ABE 1: Wool from sheep to make the traditional Fishermen's Mittens that will keep us warm under changing weather conditions during fisheries.

ABE 2: Sedges of the same species as those used inside Sami shoes were harvested, processed and braided. Shoes, based on traditions from Bayern in Germany, were made.

ABE 3: Wood from local birch were turned on a lathe and made into artificial eider-duck eggs to sustain a herding tradition caring for the duck when her eggs are vulnerable to predators. The tradition is from Helgeland, Northern Norway, in order to get valuable eider down.

All materials used in the production of the art-based expressions were sourced from the local environment from Norwegian sheep, wetlands and birch forests respectively, and were sustainable in the sense that they were renewable and that they can break down and re-enter an ecological cycle when they are worn out. The scientific perspective was explored to gain understanding of both organisms that contributed to the material and the properties of the material themselves. Through this process, we got to know how and why it has been used to help us adapt to living in the northern regions and become a part our cultural heritage.

The sustainable approach and understanding of material is especially evident in excerpts from Stolls visual essay, about the grass shoes in ABE2, and in Gårdvik's visual essay in ABE1, which deals with mittens made from wool. Both discuss the importance of the knowledge of the materials, but also the importance of the craft traditions in a cultural and northern perspective and, importantly, also in a cultural landscape perspective. This is an example of the cultural perspective of sustainability that deals with identity, culture, housing, traditions, wellbeing and also a conservation of the cultural environment and local cultural traditions (Härkönen et al., 2018; Stoltenberg, 2020/2010; Soini & Dessein, 2016).

Goldsworthy (2004) states that "you need to shake hands with the material to fully understand it", and our interpretation is that it is important to include the sensual perception of both material and the nature in your artistic work. However, in our ABEs, natural science knowledge was also an important part of our understanding of the material. This was something Stoll experienced working with different sedges making her Nordic version of southern German grass shoes in ABE2. She had to take a deep dive into both Nordic and Southern German traditions and cultural history, and the synthesis of this knowledge was important to be able to understand and use sedge as a material correctly. Different sedges have intuitively been used in different cultures. As a biologist, she knew where they grew in the Nordic landscape and that they were used due their insulating properties. In order to understand why this plant has insulating properties, it is necessary to have scientific knowledge about the plant's physiology and about its habitat in the humid and marshy landscapes. In ABE 2, it was clear that a sensual approach to the material was not sufficient to fully understand the plant's properties, but that both a sci-

entific and traditional Northerner knowledge also had significance. In this context, both the scientific and traditional knowledge was absolutely central.

In addition to knowledge of the material wool with its insulating properties, even in the wet state, Gårdvik (APE1) goes into the role the Fisherman`s Mitten has, both in a traditional and historical context, as part of her genuine interest. Wool as a material is lifted as being important for survival in our Arctic and sub-Arctic habitats. The eco-cultural perspective emerges strongly in this project and is made visible in the meeting between wool, sheep and "coastal heath", a type of cultural landscape that we find on the coast of Helgeland in Northern Norway. Wool was a valuable material, and the knowledge of how wool could be used was central in relation to survival, traffic and trade. As a result of the sheep grazing, the landscape form "coastal heath" is a man-made ecosystem that is also of great importance for the development of many different organisms and for our well-being and belonging.

Sørmo does not go into the eider down as an insulating material or in the material birch as a starting point for the artificial eider eggs in ABE3, but has placed most emphasis on the relationship with the eider and its challenges, which was the background for the production of the artificial wooden eggs. The use of wooden eggs was an important part of the tradition in egg and down production on the Helgeland coast, and the knowledge of which materials and tools were suitable for making artificial eggs was transferred from father to daughter. The eider ducks are highlighted as co-dwellers and their place in both the natural landscape (in the ecosystem), but also in the culture-based landscape. The traded and tacit knowledge is passed on from father to daughter to maintain the tradition of caring for the eider. This is an example of the transfer of Northern Knowledge (Huhmarniemi & Jokela, 2020a; 2020b; Jokela et al., 2021), which helps to strengthen the belonging to the landscape. Although the end product in this context appears as an artistic expression, it is clear that the scientific knowledge about the behaviour of the eider ducks is important. Knowledge of egg colour as a physiological adaptation to the place, knowledge of predators and the ecological interaction between organisms in the landscape must be in place in order to take care of the eider ducks so that they succeed in reproduction. It becomes clear that the eider ducks are of great importance to the maker of the project, because she has grown up in this culture and with this tradition as part of her understanding of the landscape.

ABE 1-3 reflect a new-materialist way of thinking and show how one can construct knowledge through making, where natural materials are examined in a more culturally sustainable perspective and represent the biological diversity in the landscape. In this

perspective, the natural materials are lifted, which intrinsically have inherent properties that will be useful to pass on to future generations in the form of traded knowledge. At an overall level, the ABE`s appear as a deeper reflection on the movement between man's place in nature and nature's significance for culture and tradition and is rooted in a post-humanist paradigm (Illeris, 2017). The significance of this is culturally constructed (Ingold, 2020a, p. 15), with a focus on eco-cultural sustainability (Härkönen et al., 2018; Stoltenberg, 2020/2010; Soini & Dessein, 2016).

Artistic ways of expression can help to raise issues related to sustainability in the Arctic, both of a cultural or ecological nature (Jokela & Härkönen, 2021). In this way an artistic expression about these issues reaches a different and wider audience than a scientific article. The expression can have a greater role as a carrier of culture and contribute to the spectator becoming aware of the challenge and wanting to be part of the solution. In light of this, it may be interesting to compare how people with different professional backgrounds understand landscape, *taskscape* and dwellers (Ingold, 2020a). They are important contributions since they describe the impacts when nature is viewed through cultural and art-based aspects (Jokela & Härkönen, 2021).

Conclusion

Cultural heritage and traditional handicraft were explored through sharing and using existing knowledge, and by passing it down in our present. All projects were carried out in the Nordic Arctic landscape, where the interplay between cultural and ecological aspects is closely linked. The concept of Northern knowledge (Huhmarniemi & Jokela, 2020a; 2020b; Jokela et al., 2021) was expressed in the projects in the sense that knowledge of landscape, material and eco-culture is required in order to have a comfortable life as a northern dweller. The sensory situated understanding and knowledge communication through organisms, materials and cultures clearly emerges in images and text, something that Ingold (2020b) emphasised as a prerequisite within the context of a direct perceptual engagement with our environment. The ABEs show how important it is to have a holistic approach to knowledge, especially as related to sustainable developmental issues, which in themselves are very complex. Artistic expression is thus important for highlighting the major issues that require approaches from many perspectives in order to be understood more holistically. Compounding of the dichotomies between humanity and nature (Ingold, 2020b) is crucial to focus on the major sustainability challenges in our Arctic and subarctic regions.

In LiLa, the focus was on eco-culture as an interdisciplinary foundation part with participants from various disciplines. The different professional backgrounds were clear in the ABEs and constituted a synthesis of the art and science, culture and environmental perspectives. This enriched the view of the Arctic landscape and eliminated the distance between the subjects. Scientific knowledge of species and organisms proved to be important in order to understand a material, a culture or a tradition in its entirety. In this way, the natural sciences, with their post-humanist roots, contributed to the understanding of new-materialist thinking within the arts.

Aknowledgements

The manuscript was translated to English by Gary Hoffman.

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