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# **‘Winter children’: An ethnographically inspired study of children being-and-becoming well-versed in snow and ice**

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## Abstract

For many children in Northern and mountainous regions of the world, playing in snow is enticing and connotes childhood for many adults. Even so, researchers have paid little attention to children's play in/with snow and ice. This paper aims to contribute to the growing knowledge on children's competencies and child-nature relationships by exploring how a group of children build their understanding of themselves and their environment during playful explorations in demanding winter landscapes. The study is framed by 1) a phenomenological-hermeneutic approach, 2) an analysis of selected evocative empirical examples of ways children play in/with winter materials, and 3) perspectives on '*Bildung*' (enculturation) as dialectical processes of being-and-becoming. Data were generated through ethnographically inspired fieldwork, including 20 children aged four to six, in a Norwegian Nature Kindergarten, emphasizing children's self-initiated outdoor play as educationally important. The fieldwork was conducted in 2018 during the coldest time of the year, when the playground was snow-covered. It draws on participant observation, children's photographs and on-site conversations. The study is inspired by the work of Ingold (2000; 2011), Merleau-Ponty (2012), Gibson (1979), and the Continental European philosophy of *Bildung* (Gadamer, 2004; Biesta, 2002) and applies Ingold's concepts of "lines," "knots" and "dwelling," to explore children's playful movements and experiences along lines in an ever-evolving meshwork. Three themes are analyzed. First, the ever-transforming qualities of snow and ice are discussed as existential materials and cultural conditions in the children's dialectical process of being-and-becoming. Second, the kindergarten's snow-covered playground is seen as attractive and challenging from the children's perspective. Third, as the children increase their competence in the dynamic winter environment through movement, they embody existential knowledge and skills about the socio-material context of which they are a part. Thus, they familiarize themselves with their environment as being-and-becoming winter children.

Keywords: child, outdoor education, dwelling, body, material, play, exploration, environment, affordances, kindergarten

## **Introduction**

Children in contemporary Western societies spend less time in nature than previous generations did and are less physically active than their parents were. These changes have inspired researchers and associations to develop programs to “reconnect” children with nature (e.g., Frost, 2010; Louv, 2009) and thus stimulate their physical activity and growth. Parallel to these challenges, considerable research on sports, health and outdoor education has been devoted to place and material surroundings during the last few decades (e.g., Hussain, 2018; Monforte, 2018; Taylor, Wright, & O’Flynn, 2018; Wattchow & Brown, 2011; Änggård, 2016) as well as to children-nature relationships (e.g., Cutter-Mackenzie-Knowles, Malone, & Hacking, 2019). Yet, the new interest in conceptualizing children’s connectedness to nature as a unity through outdoor play and education (Stevenson, Mannion, & Evans, 2018; Sverdrup & Myrstad, 2019) has only begun to enhance our knowledge of how children in different contexts make sense of nature (Adams & Savahl, 2017).

In the Nordic countries, children’s self-initiated play outdoors and activities in nature are widely recognized as important educational praxis and aspect of daily life (Halldén, 2011). Additionally, the Norwegian government requires that all kindergartens, which today embraces more than 90% of the country’s preschool children, provide nature experiences and learning through outdoor play all year round (Norwegian Directorate for Education and Training, 2017). Research on Norwegian nature kindergartens shows that the children typically spend a large part of their pre-school day outdoors (Sandseter & Lysklett, 2017; Lysklett & Berger, 2017).

Nordic studies scrutinizing taken-for-granted assumptions and perceived alterations have recently been published internationally (e.g., Arvidsen, 2018; Fjørtoft, 2001; Lysklett & Berger, 2017; Gundersen, Skår, O’Brien, Wold & Follo, 2016; Rautio, 2013; Samuelsson, 2008; Storli & Sandseter, 2019; Änggård, 2009). Other studies have looked at the benefits of

physical challenges and risk for preschool children (e.g., Sandseter, Little, Ball, Eager, & Brussoni, 2017) and of environmental education in preschools (c.f., Beery & Jørgensen, 2018; Caiman & Lundegård, 2018). Others have focused on the role of fantasy in how children make sense of natural environments (c.f., Jørgensen, 2018), how experiences with materials influence how and what children learn (c.f., Fredriksen, 2012; Jørgensen, 2016; Nordtømme, 2012), and the ways in which play with materials may have a purpose in itself (Rautio, 2013).

Although some of these Nordic studies include seasonal variations (c.f., Jørgensen, 2016; Änggård, 2009), few studies explore how natural materials, like snow, sand, or dirt, may have existential and educational dimensions in young children's self initiated outdoor play. Thus, this study aims to contribute to the growing knowledge on the significance of child-nature relationships for children's growth by exploring the research question: "how do children build understandings of themselves and their environment during self-initiated play with nature materials?"

Adopting a phenomenological-hermeneutic lens, we analyze data generated from ethnographically inspired fieldwork in a Norwegian nature kindergarten (*Friluftsbarnhage*), where outdoor education is a daily priority throughout the year. The fieldwork was conducted during the winter season. The theoretical analysis is based on a relational understanding of how children grow (Ingold, 2000; Merleau-Ponty, 2012) through explorative inter- and intra-actions with their environment driven by curiosity (Gurholt & Sanderud, 2016). Central to this study is the idea that humans understand the world through living interactively in it (Ingold, 2011). In addition, we employ Merleau-Ponty's understanding that all humans – in this case, children – are affected and grow by their active relationships with other humans and the world (Cataldi, 2008) and that the world in turn is affected (Ingold, 2000).

Studying educational aspects of play in/with snow may become exemplary for what is happening in a diversity of landscapes and seasonal conditions. In this case, the different ways

the children move as they play do not only imply embodying landscape features but are inscribed in the snow and create a meshwork of clear traces and visible patterns. During this study, it became apparent that outdoor play in deep snow and on ice provide illustrative examples on how children grow during self-guided play in nature.

### **Theoretical framework**

This paper is framed by an understanding of children's play as voluntary, spontaneous, ludic and exploratory. It adheres to a perspective that curiosity and exploration are innate driving forces that inspire children to explore what they find novel and interesting (E. J. Gibson, 1988; Hodgkin, 1985). As they play and move hither and thither between known and unknown places, material and situations, they explore different aspects of themselves and their surroundings. Thus, a quest for existential knowledge about who they are and what happens in their life-world can be understood as fundamental drivers of children's play and growth (Gurholt & Sanderud, 2016).

In this study we also apply Ingold's (2000, 2011) metaphor that an environment can be characterized as consisting of lines, knots, meshworks and dwelling. Children learn to know their world by living, moving in and sensing it (Ingold, 2000). Ingold's concept of dwelling posits that a landscape and its inhabitants are intertwined in a dynamic whole that is constantly (re)making itself. By wholeness, he means a meshwork of knotted cords "woven from the lines of growth and movement of inhabitants" (Ingold, 2011, p. 151). Thus, when children play with others or elements in the environment, their lines are connected by knots. Consequently, they can be viewed as continually weaving themselves in a meshwork of relationships. We can illustrate Ingold's metaphor with this example: Imagine children playing on a playground covered with snow, as they do in this study. After a while, small patches of well-trodden snow mark places where the children have played extensively. These

patches are connected by paths, which the children have created. Seen from above, the playground resembles a meshwork of lines, tied by knots. Continuing with Ingold's metaphor, these snow patches and paths are physical manifestations of children's movement and growth. Thus, the meshwork becomes an illustration of how the lives of individuals are intertwined with each other, as well as with non-human features of the environment. In short, children's movement weave them into their environment, and thus is fundamental for their perception and understandings (Ingold, 2011).

The relationship between children and their environment is interactively. Children may be emotionally affected by situations and material conditions (Cataldi, 2008). Sliding down a hill, for example, may generate a sense of exhilaration or fear. A child's body may also be influenced by how he or she lifts a heavy stone. At the same time, playing children influence their world. For example, the physical traces they leave on popular climbing trees and around boulders (Arvidsen, 2018; Ingold, 2000) are prerequisites for their understanding of themselves and the world.

J. J. Gibson's concept of affordances (1979) illuminates how winter environments influence children's play. For Gibson, an affordance is a perceived possibility for movement in the environment. Rather than a quality of either the surroundings or the child, it emerges from a combination of the surroundings and the ways in which the individual child understands its possibilities based on earlier experiences. Heft (1988) expands on Gibson's ideas, arguing that playing children continually discover new uses of their environment and new features in it. As we will demonstrate, snow exemplifies both the flexibility and the potential openness that the concept of affordances suggests.

The philosophy of *Bildung* is useful for understanding how children's self-initiated play mesh with their growth (Gadamer, 2004; Biesta, 2002). In general, *Bildung* connotes subtle fields of holistic experiential fostering or enculturation that emphasize a playful and

dialectical process of being-in-the-world; a continuous “becoming” in our awareness of possibilities and limitations in our knowledge. The approach includes respect for other cultures, nature and building democratic and environmentally responsible citizenship, including a sense of moral and ethical awareness (Løvlie, 2002). It also includes intertwined processes of being and becoming (Uprichard, 2008), which are situated within sociocultural contexts and open to consideration of individual goals and progress. *Bildung* may occur anywhere and at any time (Biesta, 2002), including time spent in outdoor education (Backman, 2008; Gurholt, 2008), sport and Physical Education (Schenker, 2018; Quennerstedt & Larsson 2015) as well as in kindergartens (Ødegaard & White, 2017). It emerges from experiential knowledge, which can only be acquired through direct experience (Gadamer, 2004), and is thus linked to Merleau-Ponty's phenomenology of the body and the concept of lived experience. Moreover, journeys – exploring and experiencing unfamiliar situations, cultures and environments before returning “home” – are a core metaphor of *Bildung*, contributing to self-formation and enculturation (Gustavsson, 2001). These metaphors can be applied to an interpretation of self-formation of knowledge-in-being in nature environments. Thus, one may argue that outdoor experiential education connects knowledge about self, others and environments that are only accessible through participation. The concept of *Bildung* suggests that the driving forces of “being-and-becoming” independent children are curiosity and experience as a quest for adventurous explorations of what is unknown, rather than a quest for risks itself. This makes children become competent in their present situation whilst expanding on their lived experiences (Gustavsson, 2001).

## **Methodology**

To gain insight into children’s play with winter materials, this ethnographically inspired study was conducted at a public kindergarten that emphasizes outdoor education.

The staff reported that the children alternate two weeks in an “outdoor section” of the kindergarten with two weeks indoors. In the outdoor weeks, their only shelter is an un-insulated one-room wood “hut,” and they spend a considerable amount of time outdoors. They also have access to an indoor dressing room. During both the outdoor and indoor sessions, the children play in natural environments every day throughout the year. The fieldwork for this study took place while the children were in their outdoor session in January 2018.

The kindergarten is located in a semi-urban area on the west coast of Norway, close to a fjord surrounded by steep mountains. Due to its high latitude and the surrounding topography, the kindergarten receives no direct sunlight for many weeks every winter and during that time, it is usually covered with snow and ice. Its playground is a largely undeveloped natural environment, characterized by rocks, trees, small cliffs, roots and local flora and fauna. The children build houses, and dig and play in the snow and ice. Thus, the playground in this study shares some characteristics with what Frost (2010, p. 185) calls “adventure playgrounds.” The children are encouraged to set their own agendas and roam the area more or less independently. During the fieldwork, the kindergarten staff also arranged hikes to nearby areas with natural environments that differed from the kindergarten’s playground.

The entire kindergarten staff and all parents received written information about the study’s purpose and methods and were assured that participation was voluntary. In addition, the parents were provided with information about the study written in simple language to read to their children. All of the staff members gave their written consent for participation in the study and all 20 children (4-6 years old) at the kindergarten participated, with their parent’s written consent.

Drawing on sensory ethnography (Pink, 2009), the study employed participant observation, field talks (Fangen, 2010), “play-along” research (Sanderud, 2018), and

children's photographs (Einarsdottir, 2005; Pink, 2013). All of the informants contributed to the generation of data by means of observation and field talks that focused on how winter weather and winter materials influenced children's play. The fieldwork was carried out by the first author and discussed thoroughly with the second and third authors. The observation consisted of visual observation as well as active participation in children's play. The researcher's "play along" strategy involved "mutual experiences" with the children while maintaining an analytic distance (Sanderud, 2018). This approach provided a rich understanding of what it means to be a child in a winter-environment. For example, by providing the researcher with feelings of warmth spreading throughout the body while running, or of being "compelled" by slippery terrain to slow down and use hands, feet and torso to stay balanced, we could explore a varied set of movement possibilities and competencies.

The researcher photographed, video recorded and wrote detailed field notes concerning everyday winter situations involving children playing with materials in a natural environment. During the same period, four boys and two girls photographed situations depicting their interests, which were subsequently used in interviews that focused on each child's individual images.

Pictures, videos, fieldnotes, and transcribed interviews from the fieldwork were manually coded guided by the research question, using Nvivo 12. The coding identified themes appearing regularly, but also those signifying diversity and conflicting or ambivalent ideas. Below, we expand on three analytic key-themes that demonstrate different aspects of being-and-becoming a child during play in the winter environment. Furthermore, the analysis draws on the previous mentioned theoretical framework and employ three levels of interpretation as described by Fangen (2010). At the first level, we describe observations in detail. At the second level, what other may refer to as "thick descriptions", we describe

relevant context(s) of the observations. At the third level, we critically interpret the participants' inherent needs, meanings, agendas and/or motives.

### **Play and growth in a winterscape: three analytical key-themes**

The first theme, “play in snow and ice in an ever-changing winterscape,” focuses on general qualities of human-nature interactions: how features of the environment are continually influenced by human action, and consequently change and provide different affordances both daily and in the moment. The second theme, “playing along lines on the ‘sliding’ hill,” looks at how place-specific materials and topographies create possibilities for children’s playful movement and are woven into social relationships. The third theme, “weaving a knot with snow and ice,” demonstrates how icy materials can become key elements in children’s play. Although the three themes are illustrated primarily through excerpts from observations, their contextual and empirical foundation emerged from an analysis of pictures, interviews and field talks.

### ***Snow and ice in an ever-changing winterscape***

In the course of this study, the air temperature, humidity, precipitation, amount of snow and snow-conditions varied from day to day, as well as during each day. Consequently, the properties of the snow also ranged greatly. At colder temperatures, its consistency was reminiscent of powder or sugar: it was difficult to pack and shape into snowballs, for example. At warmer temperatures (above 0 Celsius), the snow was more like moist clay, and became easier to pack. If it snowed during the night, the new cover concealed traces of the children’s play on the previous day: their footprints and snow figures, as well as the tracks they made climbing up and sliding down hills vanished. This overnight transformation of the environment provided the children with untouched surfaces and renewed affordances to play

with in the morning. Some days, the snow went from cold, dry, hard and crumbling to mild, wet and malleable.

In addition to the snow and temperature, the light also changed throughout the day. Some mornings when the children arrived at the kindergarten their *winterscape* was hidden in almost complete darkness, illuminated only by some large floodlights. Dawn regularly transformed the atmosphere, sometimes giving the children a feeling that a new world filled with possibilities for play and exploration was rising around them. By the time they left in the afternoon, the “stage curtains” of dusk had closed. Jørgensen (2016; 2018) find that light and weather inspire variations in children’s play themes, as well as the atmosphere of their play-places. Rendering Ingold (2000, 2011), the shifting atmosphere influence how the children understand the environment. In this ever-changing landscape, children are never sure what their lines may cross or run into; what weather, snow conditions, or peers they may encounter. This adds new variations to affordances to explore, perceive and imagine. In motion, the children experience resistance, fear, joy, laughter and exhilaration along their lived lines and in the knots they form. Thus, the set of affordances in the playground varied greatly throughout the fieldwork for this study and the data corroborate that the *winterscape* is vigorous and ever-changing.

A *winterscape* is understood to be a cold, white or grayish environment, partly or fully covered by snow and ice. Here, it resonates in playing and growing children. Further, in this study *winterscape* refers to an environment for play and growth that children shape, understand and make their own through their activities. This perspective differs significantly from a naturalistic view of the landscape as a neutral and external backdrop for children’s play. As a concept, *winterscape* is inspired by Ingold’s (2000) “taskscape”, a term he created to highlight how dwellers create an environment that is always becoming in response to their activity.

Like Arvidsen's (2018) study of older children, the field-researcher of this study observed that in a *winterscape*, materials flow. Children picked up snow and ice in one place and then threw it away, or moved it to another place where they used it for a different purpose. For example, snow was mixed with water or shaped into human figures or fantasy animals. When the researcher left the playground in the afternoon, he regularly observed traces and patterns of children's play – for example, places where their hands had picked up snow to make snow figures and the snow figures they had created, “living” throughout the landscape. Thus, the flow contributed to transforming the surface and atmosphere of the *winterscape*, from pristine in the morning to an area filled with traces of children's play and imagination in the afternoon.

### ***Playing along lines on the “sliding” hill***

The kindergarten's playground has a topography that includes hills with slopes of varying steepness. The researcher observed children engaged in different types of sliding and playing on them as the qualities and amounts of snow changed from day to day, and even during the day.

One morning after about 15cm of snowfall, many children were sliding down a large hill at relatively low speed. The researcher selected one of the girls to watch closely, and writes in his fieldnotes:

Silje slid with her feet forward from her upper body, shoveling snow in front of her shoes. I observe that the snow alongside her is “softer” than the snow where she had recently slid. There, the snow looks firmer. After several children slide down in the same track, Silje no longer shovels up snow when she slides. Her track has become icy. In addition, it appears that her speed has increased.

As more children slid down the hill, the track that Silje had created in the snow was transformed from loose to firm and icy, enabling the children to slide faster. Thus,

relationship between the children and their environment became interactive: The sliding children gradually shaped the track into a fairly straight line with a smooth surface, although it continued to have small bumps and short curves. One might say that the micro-texture of the hill responded to the sliding children by creating physical imprints such as bumps, curves and an icy track that afforded other ways of sliding.

As they slid, the children spun and jumped on small bumps. From their point of view, the hill could be perceived as pulling and spinning their bodies down the slope. Some accelerated to high speed so they could lift off at the bumps, while others braked with their feet to keep their speed down. Thus, sliding became a multi-sided relationship of the children-hill-line-and-knot patterns that, following Ingold, played “an active part in the ongoing formation” (2011, p. 70) of both the children and the hill. Thus, challenges such as a sharper-than-expected curve may be unpredictable when the children initially slide, but become softened and familiar as they master it.

These variations suggest that “sliding” is not a single form of movement, but a collection of different movements shaped by children’s interests and responses to affordances, and evolve as they expand and experiment with their range of movement. Thus, the concept of “sliding” becomes a multiplicity of ways of being in motion – variations that may be fun, attractive and exciting, but may also end in pain and tears. The concept of “sliding” continually offers new challenges and meanings as the children-hill relationship develops.

Silje’s experience illustrates how the children-hill relationship both creates and changes affordances as the children develop new ways to utilize and master natural materials and relate to their varied qualities. Thus, the lines children play along can be partly unpredictable and partly follow a pattern that the children may be(come) familiar with.

After the children had slid down the hill, many of them climbed back to the top. Bent's climb exemplifies how children's movements can occur as a response to their environment, in this case the texture of the sliding hill.

I observe Bent ascending the hill. He seems to walk fairly "normally" up the gentle slope, with his arms hanging casually down. Suddenly, his feet slip and he stretches his right arm out. One more step and he lowers his arm again. As he climbs, he slows down, and seems to be more and more focused on his steps, carefully choosing the places where he plants his feet in the snow. His footsteps are shorter now and controlled. His body seems a bit "stiff", and his torso shifts quickly from side to side in small movements. As he approaches the top, he lowers himself and crawls the last few meters on his knees, using his hands. Other children climb to the top by different routes. As I climb some of the hills, I have to walk on the sides of my boots. The holes they create are shallow because the snow is icy and hard, and the edges of my boots barely fit in. I feel unsteady and afraid of falling. Although Bent does not fall while climbing, other children do.

Here, Bent exhibited embodied control and balance as he climbed the icy hill. He was able to play in and with the slippery conditions, even though these created an unstable, demanding environment. His stride constantly shifted in length and sometimes went sideways as his body adjusted to the micro-terrain. Applying the insights of J. J. Gibson (1979), this way of walking can be interpreted as a consequence of the relationship between the terrain and Bent's posture and physical ability. While climbing, his body responded to the demanding textures he encountered. His constant, precise shifts in stride, adjustments of his torso, and utilization of his arms can be understood as emerging from the interplay between Bent, the ground and gravity.

Bent's precise positioning of his feet, the support he drew from his hands in different types of snow wove him into the textures of the hill, providing him with tactile experiences of friction, gravity, and balance as his movements initiated a child-icy hill meshwork. At the same time, he developed his "body schema": an awareness of his body's relationship to the texture and topography of the hill. Following Merleau-Ponty, Bent's body just "knew" how

his hands, feet and balance should shift to accommodate the small curves and bumps of the icy texture (Morris, 2008). This awareness was rooted in his previous play and movement experiences in this and similar terrain. Bent's understanding of his own physique in relation to the ground gave him clues as to how he might use his entire body to ascend the hill. At the same time, the hill guided his movement (c.f., Gibson, 1979). It seems that he had an immediate idea of how to maintain control of the situation as he moved, touching the ground with different parts of his body: His steady progress across the terrain required considerable dexterity.

Merleau-Ponty's insights would suggest that Bent's ascent of the hill evoked experiences of life and about his living body – about balancing, being in a state of balance and regaining his balance whenever his feet slipped, as well as negotiating the physical relationships of, for example gravity, he was entangled in. Although Bent's motivation for ascending the hill, other than his desire to slide back down, remains unclear, his experiences are about not only snow and ice as hard and slippery materials. While moving on those materials and playing with them, he grew understandings about his capacities and ableness, and how to move; about unnoticeably adjusting his torso and limbs to maintain his balance, control and/or joy in shifting environmental conditions. These were skills he obviously mastered well – certainly, better than the researcher. Bent's body seems to have easily “read” the best way to ascend the hill and responded to it pragmatically. His body “understood” or responded immediately to the situation. Through repeated ascents in this particular hill, his moving body developed a habit of how to read the environment and ascend slippery terrain. Thus, his varied experiences of moving in the terrain developed his body schema. We can say that his competence of the slippery slope became embodied (Standal & Engelsrud, 2013).

Most of the children seemed to move confidently across the icy and slippery natural environment, confirming their expertise in mastering what the staff and the researcher found

to be difficult terrain. The staff members, in fact, had spiked shoes to help them grip the icy ground and were rarely observed on the hills. The researcher, although highly experienced in walking on snow and ice, felt clumsy and found it difficult to walk on the hill, whilst the children went up and down quickly and confidently. Thus, the environment had a different meaning for the children than it had for the adult staff and researcher. The adults regarded the ice an obstacle; the children did not, even though they sometimes lost control and slipped and slid, indicating they were negotiating a fine balance between what they could and could not master. Aksel and many other children told the researcher that they were not afraid of climbing on the hard, slippery terrain, even though they probably knew that falling could be painful. They played with little direct advice or supervision from the staff, although they knew where to find a staff member if necessary. Thus, the children's trust in their capacity to handle winter conditions was an important component in the child-nature relationship, as well as in the pedagogy employed by the staff in this study and in other Nordic kindergartens (Halldén, 2011; Sandseter & Lysklett, 2017). Following Ingold, their understanding of their capacities can be interpreted as a result of the line they moved and played along, the knots and meshwork created by their play – what Merleau-Ponty (2012) would characterize as their “intentional arc.”

The children may have perceived the icy hill and gravity as partly predictable and partly unpredictable “dance partners.” From their perspective, the children-hill-gravity interaction was a partnership in which the participants played with and challenged each other. The partners “took turns” leading and being led: Bent, for example, kicked his feet into the hard snow to get footholds. Sometimes gravity may be said to have metaphorically gripped his feet and pulled them a few centimeters, then suddenly ceased pulling. Bent then continued climbing, using his hands for support. This sequence could be viewed as a back and forth process, but Ingold's insights would suggest it is more accurately a longitudinal movement

along Bent's growth trajectory. Children may perceive something as mundane as moving through terrain as exciting because they never know where they and their dance partners will end up.

### *Weaving a knot with snow and ice*

The third example unfolded around an old, partly buried rowboat. The researcher sat on its rail, talking with two girls. One of them, Eli, showed the researcher an ice chunk that she had found the day before. "I hid it over there," she revealed, pointing toward some trees.

"Somebody stole it, but I found it again." Eli's decision to hide the chunk of ice so that she could play with it again the next day, as well as her search to recover it both indicated the value that she placed on the ice. Other children expressed a similar aesthetic appreciation of pieces of ice. One girl praised a chunk as "so beautiful, and [it] looks like an ice-mountain"; another declared that her ice block tasted "like chocolate", suggesting that she not only had tasted it, she really liked the way it tasted. A boy commented that his piece of ice "looks like art", while others cleaned the dirt from them. Photographs taken by children also depicted ice in different ways. Some, for example, showed the photographer looking through thin sheets of ice, making his or her face appear blurry.

Suddenly Aksel appeared up by the boat and wanted to join in. Eli told him that he had to collect some ice if he wanted to join us and instructed me to help him. Aksel guided me to a small, partly frozen stream. My field notes read:

I ask Aksel how we can break the ice. "We should hit it with a stick," he quickly responds. "This one is thick" he declares, lifting a stick approximately 1.5m long that is too thick for his hand to grasp all the way around. He tries to strike the ice, but the stick seems too long and heavy for him to control its arc. He tries a few times, but only succeeds in making small, white spots on the ice. I ask if I should help. He nods. I kick the ice. After four kicks, a chunk about the size of a basketball breaks off. Aksel stands gaping in amazement and makes an "oooooh" noise, runs toward the chunk of ice and

picks it up. We walk slowly back to Eli and the boat. Aksel's steps seem heavy and his face looks focused. Eli smiles when he arrives. She looks very happy and runs towards Aksel.

Aksel seemed to have “known” where to find ice and what properties the stick needed to break off a piece of the frozen stream. He acquired this knowledge in the course of several years in the *winterscape*, during which he had experienced shifts in weather and material conditions during daily and seasonal changes and learned that water freezes to ice at cold temperatures and can be tasted, cleaned, admired, carried and broken.

When lifting and swinging the long, heavy stick, Aksel may have experienced that his body's center of gravity changed as he swung it, as well as how it bounced back after hitting the ice and how the impact reverberated through his body. One might say that from Aksel's perspective, the huge stick responded to his actions by bouncing back and that the ice reacted by “turning into” white spots as Aksel and the stick “danced” (c.f., Ingold 2013). Applying Merleau-Ponty's (2012) conceptual framework, as Aksel swung the stick and struck the ice, he developed a sense of its length and how far its tip could reach. Although it appears that he was unable to break the ice, we may interpret his actions as a process of incorporating the stick's material qualities.

Even though Aksel's body moved as he hit the ice, the white spots appeared in relatively close proximity to each other. His strikes were influenced by the response of the ice, and how his body compensated for that response. Our interpretation of Merleau-Ponty suggests that as he wielded the stick, Aksel not only sensed its weight and texture, he also perceived the hard, slippery surface of the ice with the stick.

The ice was marked by the activity; Aksel was changed through his interaction with it. His stick inscribed white marks on the ice that were visible to his peers. After the large chunk was removed, the researcher observed that it took several days for that spot in the stream to

refreeze. Before it did, other children searching for ice may have been astonished by its absence in that spot and changed their play accordingly. In other words, Aksel and the researcher were active contributors to the meshwork of children moving to and from the stream as they broke, lifted and carried chunks of ice and “stimulated” the stream to create new ice.

The openness of the outdoors provides an important arena for developing social relationships (Jørgensen, 2018). Aksel probably recognized that he risked disappointment if the ice he collected did not meet Eli’s expectations. Fortunately for him, she expressed awe when she saw what he had brought. Her acceptance of his contribution influenced their negotiation of roles in the kindergarten “play-culture,” with the ice chunk functioning as a mediator that wove their individual lines into an icy knot. As their play developed, the ice “unlocked” the Aksel-Eli-relationship, intertwining both of them deeper into the other’s meshwork.

### **Being-and-becoming familiar with snow and ice**

The above analysis of children’s play and movement in, with, and across snow and ice – based on the perspective of *Bildung*, embodiment, lines, knots and meshwork, and affordances – suggests that the children in this study were engaged in life-forming experiences with existential qualities.

Children’s lived lines do not have a specific beginning or end; they weave as they move from place to place every day. Their understandings of their physical, cognitive and social limitations and possibilities expand as they explore and weave a meshwork that ties them together with local materials and other children. The examples cited here demonstrate that children are highly competent; in some cases, more competent than adults, for example, in moving across slippery ground. They display confidence and competence when climbing

icy slopes and roaming in a *winterscape*. Growing understandings of how to climb a slippery hill or break thick ice involve not only embodiment of different usage of one's own body in different ways or overcoming gravity, but sensing and embodying the world through one's hands and feet in response to challenges such as slippery ice. It also requires living in one's world in ongoing explorative ways: playing differently and seeing new possibilities for play that integrates growth. Understandings of their environment and its possibilities and limitations are existential; they can only emerge through playing, exploring and living within environments. Thus, different ways of movements, such as running, sliding, picking, and hitting nature materials becomes central in being-and-becoming.

Although, the examples of children's play in a demanding winter environment are central in this paper, other environments, seasons, and materials will provide children with a range of place-specific possibilities for explorative and playful moving retaining place-specific existential dimensions and enculturation (Arvidsen, 2018; E. J. Gibson, 1988; Fredriksen, 2012).

We view the children in this study as being-and-becomings, recognizing that they grow an understanding of their environment and their body's capacities as they move, play, explore and form life-threads into meshwork of child-world relationships. From this perspective, they are active agents who have constructed and construct their environment in the past, present and future. They exhibit competence by moving fluidly, confidently, and trustfully across rough, icy terrain and utilizing winter materials in their play. When they climb a steep hill, slide down it or collect ice, they are expressing the value of their play. These children are always experiencing, always growing and becoming steadily more confident in their own abilities and expertise in varied winter conditions. Intertwining themselves in a *winterscape* meshwork, they are constantly becoming; entangled in different relationships as they construct their evolving worlds. Negotiating social roles and exploring

relationships with little adult supervision allows them to make decisions and enjoy outdoor experiences that foster independence and self-confidence, which are considered valuable democratic qualities (Aasen, Grindheim, & Waters, 2009).

The varied weather creates constantly changing, dynamic atmospheres and qualities in the playground. In a landscape renewed or transformed during the night, every morning brings new possibilities. Perhaps new snow has arrived, the temperature has changed, or traces of children playing the previous day have hardened. Thus, the *winterscape* constantly offers children different affordances and circumstances, which they perceive, conceive, and explore and/or to which they respond. Something as mundane as ascending a hill may be astonishing and attractive because the children can never be completely sure what condition the hill are in or what challenges it may present. Consequently, they learn to encounter changing situations as tests of their capacities, at once exciting, joyful and novel (Gurholt & Sanderud, 2016). Through their relationship with the winter environment, journeying along lines and playing in knots, they become accustomed to coping with variations in a world that is “a constant source of astonishment” (Ingold, 2011, p. 74). In addition, they build self-confidence.

Children develop their own play-culture, negotiating what to do, where to go and who to include (Jørgensen, 2018). As they travel along their own lines and explore the knots that they share with other children and materials in kindergarten, *Winterscape* children not only shape their understanding of themselves and their environment, they also grow into and contribute to the culture of outdoor play that is central to northern regions. Thus, they also become incorporated into the culture at large, which is at the core of enculturation or *Bildung* (Gustavsson, 2001)

We have argued here that when children explore relationships and dwell within the *winterscape*, they are engaged in processes of being and becoming that are attractive and meaningful in itself. In combination with their inherent curiosity, fantasies and enthusiasm,

the landscape's challenges and responses immerse children in a continuous hermeneutic, back-and-forth movement between the known and the unknown. The hermeneutic quality of their play (Gadamer, 2004), enables these children to comprehend their current experiences in the light of their past. Through this process of elaboration, they continuously reshape their past, present and future understandings of the environment and their relationship to its features, weaving their lines of movement into a constantly evolving meshwork of relationships. At the same time, their present is meaningful in itself. In other words, the *winterscape* gives them an opportunity to explore who they are here-and-now in a meshwork of relationships while expanding the understanding of themselves, constructed through their ongoing experiences with snow and ice.

### **Concluding comments**

This paper has argued that as children move and play through natural environments, they embody their environment as beings-and-becomings. As the children play in dynamic and ever-changing environments, the children learn to trust themselves and to appreciate moments of the unexpected. In responding to and building understandings of how to respond effectively to challenges, they mature and grow competencies essential to life.

Hence, children playing in nature are never “finished” or complete. They are always beings in becoming, always growing, as they constantly foster competence in relation to their environment. At the same time, they exhibit competence and control in demanding situations.

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