

Curious play: Children's exploration of nature

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Abstract

This article explores the concept ‘curious play’ as a theoretical framework to understand and communicate children’s experiences of free play in nature. The concept emerged interactively from three sources of inspiration: 1) an ethnographically inspired study of children playing in nature, 2) as a critique of the concept of ‘risky play’ being the dominant discourse on children’s play in natural environments, and 3) from phenomenological and cultural-historical theories of children’s play and play environments. The article illustrates this interplay through an analysis of two empirical examples, and argues that curious play opens for a comprehensive and existential approach to understanding the interplay of children playing in nature and children’s growth. Thus, children are conceptualised as active explorers and playful agents whilst embodying and creating knowledge, skills, and understandings of themselves and their life worlds.

Keywords: affordances; curious play; children; exploration; nature

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Introduction

The aim of this article is to propose the concept 'curious play' as a theoretical framework for understanding and discussing children's experiences of and attraction to self-managed play in natural landscapes. The concept curious play emerged interactively from three sources of inspiration: 1) an ethnographically inspired study of children playing in nature, 2) as a critique of 'risky play' being the dominant discourse in research on children's play in nature and 3) from phenomenological and cultural-historical theories of children's play and their play environment.

Firstly, our concept of curious play evolved out of an ethnographically influenced study with key-informants up to 10 years of age. The study involved observation, field-dialogue, and photo-elicitation at a family summer camp in the mountains organized by the Norwegian Trekking Association (Den Norske Turistforening) (Sanderud, 2011; Sanderud & Gurholt, 2014). We will illustrate the concept using two empirical situations from that study.

Secondly, we began questioning the concept of risky play, which has been used as the theoretical framework for most recent research and for legitimization of children's play in outdoor surroundings (Brussoni et al., 2015; Sandseter, 2010; 2013). We do not question the assumption that children innately seek challenges and that nature environments invite children into exciting forms of play that may involve a risk of physical injury. However, we do dispute the premise that children innately seek physical danger and the assumption that the quest for risk is essential to children's growth. Our doubts seem to have a parallel in an increasing appraisal among Anglo-American outdoor educators and researchers who have recently argued that the risk concept lacks valid educational support (Wattchow & Brown, 2011; Beames & Pike, 2014). Accordingly, a growing number of projects have been initiated to

develop an alternative culture of teaching and learning outdoors (Beames, Higgins, & Nicol, 2011; Waite, 2011; Knight, 2009). These alternatives are partially inspired by practices that have long characterised the Scandinavian ‘uteskole’ and ‘friluftsliv’ approaches to learning in nature (Henderson & Vikander, 2008; Knight, 2009): an emphasis on free play, exploring activities, place-based knowledge, local natures and cultures, and sustainability.

Thirdly, we were drawn to phenomenology and cultural-historical theories by their ability to illuminate the complexity of children’s nature play and connect children’s lived-play experiences to qualities of their play environments (Frost, 2010). These theories recognize that children are born curious (Hodgkin, 1976), and that environments invite children to engage with the world through playful explorations of many kinds (Gibson, 1988; Ingold, 2000). This approach also complements our understanding that experiential education is cultural-historically rooted in child-centered pragmatism (Dewey, 1958), a theory that emphasizes children’s curiosity and interaction with environments. Several Scandinavian studies have described how children grow interactively through play in nature, becoming nature-literate, physically and culturally skilful (Fjørtoft, 2000; Sandberg, 2012). Løndal (2010), for example, shows how eight- and nine-year-old children involved in after-school programmes create and live their social lives through outdoor physical play, acquiring physical knowledge of their surroundings in ways that enables them to create connections, mastery, meaning, and an overview of their reality.

In the Norwegian context, curious play confronts an internal contradiction. On the one hand, most children have access to nature or green areas within a walking distance of their home (Skår et al., 2014); playing freely in nature environments is considered an important aspect of daily life and what it means to grow up. The high value attached to children’s free outdoor play is linked to the culture of ‘friluftsliv’; involving roaming and experiences of closeness to nature for pleasure, adventure, and self-cultivation, ideally on nature’s own terms. Friluftsliv

may involve risk but risk is not one of the objectives (Gurholt, 2014: 2016). On the other hand, today's Norwegian children typically play outside under adult supervision, either in kindergarten or in after-school programmes (Skår et al., 2014).

In the discussion that follows, we outline the theoretical framework we have used to encompass curiosity, children's play in nature, and growth. We continue with a discussion of the ethnographically inspired approach used by Sanderud (2011) to understand children's nature play from their own perspective. To illustrate our argument, we analyse two empirical examples involving climbing a tree and playing with running water. We conclude with a discussion of the implications of the concept of curious play, contrasting this concept to risky play discourse, and argue for the value of a theoretical framework recognising the value of curiosity, wonder, and play.

A Framework of curiosity and wonder

During the European Middle Ages, Church leaders and philosophers stigmatized the idea of curiosity. They feared that people who used their own eyes, ears, and voice to ask questions and acquire knowledge would challenge traditional social authorities and structures. The philosopher Thomas Hobbes (1588–1679) was the first prominent thinker to challenge this dogma and praise curiosity as important to individual development. He declared that our desire to know how and why could be expressed with just this one word (Steinsholt, 2014). In the early 20th century, European and Scandinavian/Norwegian reform pedagogy began developing experiential learning models centring on children's interactive play from a general development aspect. The models encouraged experimentation, discovery, and experience of self and the world, through self-activated play (Steinsholt, 2014; Dewey, 1958).

Today, exploratory ludic behaviour is generally regarded as fundamental to a child's life and growth. In his explications of phenomenology, Merleau-Ponty ([1945] 1962) argues that

children are born with an intentionality directed towards their social and material environment and this environment becomes embodied. Tuan (1977) asserts that children up to the age of 10 live a more physical active life than adults do, with greater openness to the world and awareness of it. Several researchers have suggested that the relationship children experience with their surroundings is founded on pre-linguistic and pre-reflexive bodily sensing, and their perception, embodied cognitive skills, understandings, and emotions emerge interactively out of this relationship. The self and the environment are sensed, experienced, and embodied relationally as coherent and meaningful entities or life-worlds. For children, solving problems posed by their situation is its own reward (Hodgkin, 1976, 1985; Tuan, 1977; Gibson, 1979; Ingold, 2000).

Children seem to be particularly curious when they are challenged by new or difficult tasks (Hodgkin, 1976). They want to touch the untouched, smell the unsmelled, taste the untasted; they want to see what is hidden under a cloth or behind a large rock. Stepping into unfamiliar landscapes of all kinds gives children opportunities to cross-frontiers and render the unfamiliar familiar. To make sense of what is happening around them, they may seek additional cues or develop alternate interpretations at both the conscious and unconscious levels. Consequently, 'play and play environments are inextricably interrelated' (Frost, 2010, p. xviii).

The concept of play can be understood as voluntary activity of spontaneous, ludic, and imaginary quality 'that emerges from biological foundations through the child's initial solitary and social interaction with objects and people' (Frost, 2010, p. xviii). This definition corresponds to contemporary perspectives on curiosity and wonder, exploration and creativity. Researchers in a variety of disciplines have concluded that these characteristics are innate, and intimately linked to children's play, growth, and learning (e.g., Frost, 2010; Gibson, 1988; Hodgkin, 1976, 1985), including outdoor pedagogy (e.g., Becker, 2008).

Whenever they encounter objects, natural phenomena, or people, children eagerly explore whatever they find novel and interesting (Gibson, 1988).

The interplay between children and their play environment

A growing number of researchers have applied the theory of affordances in studies of children's outdoor play in natural surroundings (Fjørtoft, 2000; Heft, 1988; Kyttä, 2002; Sandseter, 2009). The concept of affordances was introduced by Gibson (1979) to describe aspects of the environment that invites and triggers animals and people to act and play. Although he was careful to stipulate that an affordance exists in the relationship between children and their play environment, Gibson (1979) has been criticized for placing greater emphasis on the environment than on the children (Chemero, 2003; Greeno, 1994). Some recent studies of children's play in nature may likewise be criticised for being more concerned with describing characteristics of the environment than characteristics of the child (Heft, 1988; Kyttä, 2002; Sandseter, 2009)

Greeno (1994) has attempted to redress the perceived imbalance by introducing the concept of 'ability' to characterize children's contribution to play in environments. Thereby he opens for a number of factors that may influence these abilities, for example, a child's pre-linguistic sensory and embodied experiences with nature, physical capacities, contextual features, and curiosity. According to this perspective, play-actions emerge through interaction between a child's ability and nature's potential affordances. For example, a child climbs a tree not just, because it has branches of the right thickness a suitable distance apart, but also because that the child possesses the requisite motor skills and wants to climb it.

In the discourse of risky play, children who climb trees, explore a natural environment alone, or play near a fire are characterised as having an innate drive to seek out physical danger (Brussoni et al., 2015; Sandseter, 2013). Sandseter (2007) divides risky play into six

categories. Most of them, such as ‘play involving great heights’ and ‘play with high speed’, were perceived as risky in her study by both by the children and the staff. However, ‘play with dangerous tools’ and ‘play with dangerous elements’ were perceived as risky primarily by the staff. Her explanation for this discrepancy is that ‘when children play near dangerous elements, they are usually preoccupied by the play they are engaged in, rather than paying attention to the dangerous element they are playing near’ (Sandseter, 2013, p. 144). As this comment makes clear, Sandseter’s categories give greater weight to environmental features than to children’s abilities and perspectives. Additionally, the definition of the concept of ‘risk’ seems to differ across studies and are not always specified (Brussoni et al., 2015).

Our use of curious play as an alternative perspective on how and why children play in nature has benefitted from the work of Ingold (2000) who regards all humans as dwellers. He posits children’s movements and (inter)actions, social structures, and ideas to emerge from intimate physical and sensory involvement with their surroundings. Accordingly, children discover and define themselves in relation to their surroundings, which are both created and maintained through different types of interaction: ‘This discovery procedure, where objects in the landscape become clues to meaning, is what distinguishes the perspective of dwelling’ (Ingold, 2000, p. 208). It is by moving and acting, playing and exploring in a landscape that children perceive and learn about it. Thus, children embody experiences about themselves and their surroundings during physical play with or without physical dangers.

We share the view that children are active and influential participants in their own life-world. They are designers of it, rather than simply passive recipients. Accordingly, how children think and play is intertwined with how they play, live, and interact with their immediate surroundings. Life is a process of continuous creation of play-actions and interactions, thoughts and meanings, inextricably linked with the child’s physical and sociocultural surroundings and imagination. Children grow by interacting and playing in and with their

world, continually discovering new elements and information that influence their relationships, opinions, and interpretations. The relationships between landscapes and children's life-worlds are relational and dynamic; formed in the process of living, rather than as constant, independent and predictable entities (Tuan, 1977). Children shape and create landscapes as meaningful wholes through continual play, movement, and other activity, intertwining themselves with their surroundings. These meaning-creating and interpretive processes are inevitably individual, which implies that every child perceives and incorporates experience and constructs knowledge of her or his surroundings in a unique manner, whilst be(com)ing members of play-communities.

Exploring contemporary children's play in nature

We formulated the concept of curious play while re-analysing some empirical material generated in the course of ethnographically inspired fieldwork. This fieldwork was conducted in 2010, during a one-week family summer camp in an ancient pastoral landscape surrounded by tall peaks and glaciers. During the camp, the children participated in different activities, such as climbing, glacier hike, fishing and a visit to a summer mountain goat farm, with their parents. It was voluntary to attend the activities and if not attending, or in between the activities, the children played freely near the camp. The study was undertaken in order to gain insight into how children played in what could be called wild nature: how they inhabited, moved in and interacted with the landscape and formed their lived play-experiences.

Studying children's play as experienced and described by the children themselves is methodologically challenging. The ability of children to express their feelings and thoughts verbally will inevitably vary, and researchers cannot step out of their own body and into a child's. Consequently, no researcher will ever gain full access to the feelings and thoughts of any child's life-world (Johansson, 2011). However, by combining participant observation with

auto-photography, photo-elicitation, and field dialogue, Sanderud (2011) elicited the children's personal views, expressions, and feelings as far as possible within this setting.

Parents of 47 of the 60 children attending the family camp agreed to allow their children to participate in the study¹. While every informant contributed to the study during the observation period, seven boys aged 6 to 10 evolved into key informants. This may have been because all of these boys were exceptionally physically active and visible, and thus caught the researcher's attention. Accordingly, they may have overshadowed other children who were either less physically active or active in other ways. However, the general impression from the fieldwork, which included observations of the other children at the camp, is that these observations did not hold contrary play forms.

Through contact and dialogues with the seven key informants all day long throughout the week, the researcher had a great deal of opportunity to listen to the children's spontaneous commentary on their play in a natural environment and their own explanations of their intentions and meanings, and to capture their communication verbatim (Johansson, 2003).

The auto-photography component encouraged individual informants to take pictures that were subsequently analysed (Noland, 2006).

The researcher conducted individual photo-elicitation sessions with three boys. Each boy's photographs served as a reference point for a dialogue on his play experiences and his feelings related to them. This provided a valuable opening for the researcher to identify and follow up on themes the boy considered important (Harper, 2002; Clark & Moss, 2011).

The researcher provided two cameras, recruiting photographers by asking informants if they would like to take pictures during the day. They took an average of 60 pictures per informant per day. The range of motifs was considerable, suggesting that the informants had differing interests or that their attention were drawn in diverse directions. The pictures were

systematized in categories such as unorganized and organized activities, social relations, special details, and landscape. During the photo-elicitation, all the informant's pictures were discussed. However, some photographs were subject to a deeper conversation than others were because they somehow triggered the conversation. To cite one example, of the 128 pictures taken by a boy we call Trond while he was at a climbing activity, slightly more than half (68 images) were characterised as not directly connected to rock-climbing. His descriptions of the motifs in his photographs included what he described as 'my hand, picking berries', 'looks like a sheep sleeping beneath a pile of stones', and a description of the glacial stream's colour as 'greyish... really... almost blue... Something between blue and grey makes it really beautiful'.

Insert the three pictures Figure 1a, 1b, 1c.

Figures 1a, 1b, 1c: Examples of photos taken by one of the boys participating in this study, showing his hand picking berries, a sleeping sheep, and a 'greyish' glacial stream.

Trond's discussion of his berry-picking photograph (Figure 1a) illustrates the ways in which the children revealed their thoughts and intentions in dialogues with the researcher. He noted that although he had tasted the berries, he did not know what they were: 'It's my hands that are picking... blueberries or... something...' The researcher, discerning from the photograph that they were crowberries, commented, 'They're a little smaller, black and taste a bit different'. Trond agreed: 'Yes, in fact, they do' (Sanderud, 2011, p. 75).

Observation of the children's exclamations and facial expressions, as well as the extent of their engagement and concentration in activities, provided non-verbal information that the researcher was able to combine with information gleaned from the dialogues on photographs

and other verbal communication. This triangulation of methods gave the researcher insight into events, situations, experiences, thoughts, feelings, and contexts—such as the tasting of berries—that otherwise might have been inaccessible.

Explorative case analysis

To illustrate our theoretical argument that curious play is a valid alternative to the hegemonic concept of risky play, we will now present two examples of children playing in nature. One involves climbing and the other concerns playing in and with running water. We chose these examples from a wide variety of observations that have been analysed elsewhere (Sanderud, 2011; Sanderud & Gurholt, 2014). Both examples give us an opportunity to compare the curious play and the risky play frameworks for understanding what motivates children's play in nature.²

Climbing a tree

The top-rope rock climbing at the family camp took place at a vertical cliff about 5 m high. After going up a few times, the children became familiar with their capacities and brought the unpredictability under control. 'After a while it became easy,' in the words of one boy, 'although it was difficult starting out because I hadn't climbed there before'.

During this activity, many of the children engaged in other activities while awaiting their turn to climb. Some picked berries or relaxed in the heather overlooking the site; others began playing with adults, other children, or a camera. As they pursued activities of their own devising, the 'top-rope climbing' activity became much more for the children. On his own initiative one of the boys, whom we will call Stian, began to climb a slender birch tree adjacent to the cliff. Here is what the researcher reported:

The tree trunk was about as thick as a tennis ball, and the branches were so slender that they bent when Stian put his weight on them. As he approached the top of the tree,

it swayed and slowly arched downward. When he was just above the ground Stian let go of the tree and landed on his feet, safely and elegantly. The boy was well coordinated and knew how to take advantage of gravity in combination with the tree's flexibility. While climbing, he exhibited both confidence and control (Field observations, translated from Sanderud, 2011, p. 76).

For a while, the birch became something more than a tree for Stian. Its challenging and swaying climbing frame gave him an opportunity to explore attributes, possibilities, and responses of both the birch and his own body. In Gibson's terminology, Stian saw the tree as an affordance and began utilising it in his own way and for his own purpose. In responding to and exploring the tree's affordances, Stian created possibilities for new actions, and new affordances appeared progressively as he made his way up the tree. It can be said that through explorative play and sensuous interactions with his surroundings, Stian created his own experiences and perspectives (Gibson, 1988; Ingold, 2000). In the course of his journey, he took part in reshaping the micro—landscape of the tree—that is, not only the tree itself, but also his own self and the people who were watching him.

Stian's bodily expressions in response to the tree's affordances showed that he had great confidence in his own abilities and intuitively knew that he could master the challenges presented by the tree. It is very possible that he had climbed trees before and used those prior experiences to 'read' his surroundings. These experiences may have given him with the confidence to investigate and challenge his own and the tree's possibilities, boundaries, and limitations.

Applying Merleau-Ponty's perspective ([1945] 1962), through his physical play with the birch tree Stian acquired experiences that extended beyond features of the bark and branches he touched and included the movements of the tree trunk as it interacted with his body's weight

and movements. Climbing the tree provided him with experiences about his own body, about balancing, and being in a state of balance, as well as about himself embodied-in-the-tree. He may also have acquired a physical experience of the birch's strengths and weaknesses; its shapes, surfaces, and flexibility; and the gravitational forces that were acting on and limiting his own body. We could even say that he processed and established a meaningful physical and intimate relationship with the tree. In sum, playful experiences such as this challenge and expand children's skills and horizon of understanding, and may deepen their awareness of their existential situation.

The general insight that we would derive from Stian's adventure is that children learn to know not only their surroundings, but also themselves, by directly and interactively exploring and embodying its complexity. Curiosity about the unknown can generate a desire to find answers to basic questions such as, 'What happens if I climb that tree', 'What are my surroundings concealing?', and 'How is the world put together?'.

The dynamic, complex, mobile, and partially unpredictable interaction between Stian and the birch tree involved far more than the engagement with possible physical risks. If we think of the cliff and the tree as playmates (Steinsholt, 2010), the cliff is the more predictable and controllable, offering a more limited number of possibilities to explore. It could be regarded as a kind of monument, a passive object that lets the children climb it. Its rocky shapes and surfaces are unchanging, and present the same handholds each time a climber encounters them, in contrast to the birch. Framed metaphorically, the cliff sits quietly and lets children climb for as long as they wish to and have the permission of the camp instructors. The tree, in contrast, is alive. The dynamic relationship between Stian and the tree implies a tension that could be said to want to shake him off.

Whether Stian was affected by or posed for the children watching him remains unclear. A desire to impress peers may have been a motivation for his play, along with feelings of curiosity and a desire to try out a challenge. The researcher did not perceive any indication that Stian's spontaneous play with the tree was motivated by physical danger. He interpreted the boy's facial and bodily expressions as indicating a desire to engage playfully with and master the tree using his body, creativity (mind), and surroundings interactively.

Playing in running water

Every day, from early morning until late evening, children played and bathed in a stream that ran close by the camp. Although its depth and width varied somewhat, the stream was approximately 0.3 m deep and 1.5 m wide. On one occasion, four boys playing in the stream told to the researcher observing them that they were following a floating cup. A little further upstream, two other boys were putting large stones next to each other to form a diagonal line across the stream. 'We're building a line of stones', they explained to the researcher quite matter-of-factly (translated from Sanderud, 2011, p. 48, 58, 83).

The researcher observed that the line of stones formed a partial dam, making the water a little deeper on its upstream side. One could say that the stream responded to the children's play by allowing itself to be re-shaped and by flowing in a different way, creating new swirls, bubbles, foam, and lines. The nature of running water, malleable yet uncontrollable, allowed the boys to perceive and experience the stream in various ways. They let water slip between their fingers, splash against their shins and press their feet against the bottom of the stream. As their eyes followed its altered movement, their skin became chilled and the current challenged their balance. In phenomenological terms, when the children's bodily play altered the flow and aesthetics of the water, the water responded by touching, pushing, and chilling

their bodies; this gave them direct and varied sensual experiences. According to Gibson (1988), experiences like this teach children about the distinctive characteristics of water, such as its texture, substance, energy, and temperature.

It is easy to imagine that a stream's gurgling laughter, its flowing and dancing currents and eddies, might invite and stimulate children to participate in physical and sensory exploratory play. Their powers of imagination may continually be stimulated to investigate the water's physical characteristics not only by experiencing, but also by wondering 'what would happen if...?' (Becker, 2007, p. 77). The most significant point here is that these children did not know where their play would take them or end. Rather than following a predetermined plan, they were interacting with the stream spontaneously and creatively, the features of the micro-landscape around them were constantly changing, influenced by whatever ideas bubbled up in their minds. This combination of lability, flexibility, curiosity, and wonder created a continuous flow of unanticipated situations, even crises and risks that the children had to resolve with the resources available to them. In the course of their play with the elements, the children experienced how running water could be grasped, squeezed, displaced, formed, or lifted; whenever they experienced thirst, they could drink from the stream to satisfy it. Each of these actions has informative consequences, providing knowledge about the properties of water (Gibson, 1988) and simultaneously becoming 'clues to meaning' (Ingold, 2000, p. 208).

Running water was like a magnet for the children (Sanderud, 2011). Whether they were following a floating cup or diverting the stream, these boys seemed fascinated by the stream's unpredictability, flexibility, and malleability as well as by its interactive playfulness with their bodies and senses. They were totally absorbed by the interaction between the water and the floating cup, the water and the rocks, the water and their bodies, and how the water responded by playing on the cup, the stones, and their bodies while they simultaneously embodied the stream's qualities and responses.

Through the children's creative play, the running water emerged as an attractive affordance. Their engagement revealed it a complex phenomenon with a wide range of sensuous qualities, practical usages and meanings (Becker, Schirp, & Weber, 2010). The play also provided the children with multiple and valuable experiences accessible only through direct involvement, rather than through abstract knowledge acquisition. All of these qualities and the enthusiasm of the children who played in the stream on their own suggest that they were attracted to it by something more than the lure of physical danger, if that was involved at all.

Based on the theoretical interpretative framework we have outlined, we would argue that children's play with natural elements such as swaying trees or running water originates in a profound curiosity and wonder about themselves and the environment in which they play an interactive role.

Hither and thither and a step forward

Many studies of children's often wild and boisterous physical play in nature have at least in part assumed that they innately seek excitement, risk, and physical danger through play in nature (Brussoni, 2015; Sandseter, 2013). However, our examples suggested a different interpretation: that risk or uncertainty is not the impetus for children's playful interactions with nature. Rather, children's durable and curious engagement and playful interactions with the environment might be an important drive in itself.

Adopting a risky play framework may limit researchers and practitioners understanding of children's play in nature to a quest for an optimal level of arousal through physically dangerous situations. In contrast, the concept of curious play encompasses a broad spectrum of sensory stimulations, physical development, embodiment, experience, and emotions. Full of curiosity and confident in their own abilities, children do not require the risk of physical danger to want to climb, play in and with running water, or investigate whether something is

edible. They may instead be motivated by wonder, unpredictability, and revealing of what the natural surroundings are concealing. In other words: the attraction could just as well be linked to the excitement of investigating what is happening and to what extent they might experience and master unpredictable and uncertain situations. While the concept risky play places a one-sided emphasis on the excitement of situations involving physical danger, curious play assumes that children have an innate desire to engage in social and corporeal investigation of their spatial and social positions, as well as an existential desire to find out, know, and grow. As they challenge their understanding of themselves and their environment through continual movement hither and thither—between security and insecurity, the known and the unknown—the play of children in and with nature assumes a hermeneutic quality.

The children in our examples explored environmental objects or affordances, such as trees and running water, but also objects unfamiliar to them—berries, animals, etc. They pursued these investigations as if they were intertwining themselves with the objects. Using their hands, feet, taste, and eyes, as well as their balance, the children generated expected and unexpected experiences, all of which were important for their self-formation and growth (Gibson, 1988; Hodgkin, 1985; Ingold, 2000). Tuan (1977) and Ingold (2000) assert that children can only generate a meaningful relationship to the environment by making this type of bodily leap into unfamiliarity by crossing what Hodgkin (1985) calls frontiers. Stian's way of moving and playing with the birch tree required a set of complex memory patterns that he could only have acquired consciously and unconsciously through engagement in related activities in the past (Gibson, 1988). When children engage in actions related to previous experiences, they are exploring and refurbishing complex and dynamic abilities and meanings—in an 'ever-spiralling path of discovery' (Gibson, 1988, p. 37). Simultaneously, they are developing affordances that their experiences, imagination, and explorations of the environment are continuously creating and modifying. Whenever children become involved in

play or other activities, they seek and create affordances. In natural environments, they do this by continuously interacting with meaning, and intention, and by reshaping objects (Ingold, 2000).

While exploring the affordances available to them—for example, by climbing trees and wading in streams—children discover or help, create novel affordances that they can then play with, according to Gibson (1988). It could be said that as children discover new possibilities for play their play-world expands. The stream responded to the children’s play by changing its shape and its currents; the birch tree tried to shake the child out of its branches. Through this form of dynamic interplay, natural elements continually offer surprising and amusing responses, which in turn require improvised and unforeseen reactions from the children. It is as if the natural elements and the children are playing together, and are driving them between the known and the unknown in ways that propel unrelated subjective experiences into their socio-historic and ecological context (Steinsholt, 2010).

To summarize our argument: Children are curious dwellers, always on the move. Rather than seeking risk for its own sake, they accept it as part of their continual search for new affordances that will enable them to discover and create new knowledge of themselves and the world they inhabit.

Curious play in nature

As a framework of understanding, curious play gives primacy to the role of curiosity as a motivating factor for children’s free play. It opens the door to understand children’s free play in nature as an exploration of their bodily possibilities and limitations through interaction with their physical, social, and cultural surroundings. From this perspective, children’s quest for existential knowledge about both their environment and themselves is a core driving force in their lives.

The innate need we refer to as curious play is similar to what Frost (2010, p. 49) identifies as exploratory play, which he defines as ‘the play of exploration from infancy to adolescence’. The framework of curious play differs, however, in its insistence that children interactively embody their surroundings through play. We are not only suggesting that curious play is more suitable than risky play as a framework for understanding children’s self-managed play in nature. We are also proposing that children should be viewed existentially, as active explorers and playful agents in shaping their selves, knowledge, skills, and world-view. Exploring children expand their abilities to manage and make sense of their lived-play experiences and life-worlds through a dialogue that challenges. Thus, they may alter and broaden their existing knowledge and mastery of environments.

In industrialised and urbanized societies, children’s opportunities for dialogue with natural surroundings through playing are evaporating at a rapid rate. In response, childhood protection movements advocating children’s free outdoor play are growing worldwide (Frost, 2010). We suppose that the protection of children’s right to play freely outdoors would be strengthened if researchers on children in nature abandoned their emphasis on risk and adopted a curious play perspective. The main reason, we argue, is that curious play offers positive and existential aspects of what it means to be a moving, playing, and growing child.

It is certainly true that children inevitably encounter physical challenges and potential dangers, and that these are relational and relative, depending on each child’s ability in the actual situation. Hence, the stimulus for risk-taking and excitement does not have to involve serious physical danger. Children may also be exhilarated by confrontations with self-confident spiralling physical challenges, as well as intellectual challenges to their understandings of reality. When children act independently in situations in which they are not certain of the outcome, they may perceive the activity as risky or fearful, even though no objective physical danger is involved. They may also find these activities challenging,

exciting, attractive, and meaningful. Similarly, children may seek out a feeling of having ‘butterflies in the stomach’, which they may derive from expectations that accompany a wide variety of challenges, as well as from an exploration of unknown or uncertain conditions. The pleasure that ensues from experiencing this type of benign anxiety is likely to be continuous, progressive, and self-validating. When children develop confidence in their own abilities, they may be said to have developed an inner awareness of trust. When things go well, they will set out to find and explore new affordances.

If the explanations of children’s behaviour offered here have merit, we are confident that further empirical research will critically validate applying the concept of curious play to describe, analyse, and understand children's sensory-bodily play in and with the natural environment.

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¹ The board of the ‘Data Protection Official for Research, Norwegian Social Science Data Services’, gave the study ethical approval. Children and their families were informed about the aims the research; ensured that participation was voluntary; and respected participant privacy and anonymity. Throughout the paper, we have scrupulously distinguished between own interpretations and the understanding of the play experiences in nature expressed by the participants themselves.

² Our re-analysis of the data presented in Sanderud (2011) for this paper was informed by the theoretical perspectives on curiosity and wonder cited above, as well as by the new thinking on the interface between children at play and their play environments.