



**UNIVERSITY  
OF TURKU**

This is a Final draft version of the article published originally by Taylor & Francis, accepted for publication in the journal:

Environmental Education Research

This version may differ from the original in pagination and typographic details. When using, please cite the original.

**AUTHOR(S)**

Renlund, J., Kumpulainen, K., Byman, J., Wong, C. C., & Sintonen, S.

**TITLE**

Aesthetic flux: inquiring into the sensuous dynamics of children, matter and environments with a more-than-human lens

**YEAR**

2024

**DOI**

10.1080/13504622.2024.2350675

**CITATION**

Renlund, J., Kumpulainen, K., Byman, J., Wong, C. C., & Sintonen, S. (2024). Aesthetic flux: inquiring into the sensuous dynamics of children, matter and environments with a more-than-human lens. *Environmental Education Research*, 30(7), 1076–1092. <https://doi.org/10.1080/13504622.2024.2350675>

**VERSION**

Final draft

**LICENSE**

© This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License (CC BY-NC) ;

<https://creativecommons.org/licenses/by-nc/4.0/>

This paper is a final draft of the published article:

Renlund, J., Kumpulainen, K., Byman, J., Wong, C. C., & Sintonen, S. (2024).

Aesthetic flux: Inquiring into the sensuous dynamics of children, matter and environments with a more-than-human lens. *Environmental Education Research*, 30(7), 1076–1092. <https://doi.org/10.1080/13504622.2024.2350675>

## **Aesthetic Flux: Inquiring into the sensuous dynamics of children, matter and environments with a more-than-human lens**

Jenny Renlund, Kristiina Kumpulainen, Jenny Byman, Chin Chin Wong & Sara Sintonen

### **Author details**

Jenny Renlund: Doctoral Researcher, University of Helsinki, Finland.

jenny.renlund@helsinki.fi, +358403100006, ORCID 0000-0002-7378-0875

Kristiina Kumpulainen: Professor, University of British Columbia, Canada.

ORCID 0000-0002-0721-0348

Jenny Byman: Doctoral Researcher, University of Helsinki, Finland.

ORCID 0000-0001-9244-0174

Chin Chin Wong: Doctoral Researcher, University of Helsinki, Finland.

ORCID 0000-0003-3432-1868

Sara Sintonen: Professor, University of Turku, Finland.

ORCID 0000-0003-1157-0116

### **Abstract:**

Although sensuous and embodied engagement is an integral part of child–environment relationalities, the intersections of aesthetics, children and environments remain scarcely addressed. As a response, this study develops a concept of ‘aesthetic flux’ to delve into the sensuous dynamics of matter and bodies in the context of a storying workshop in a forest with first graders in a Finnish primary school. An arts-based, post-qualitative methodology guided our analysis of video recordings from the workshop, resulting in visual-sonic montages that draw attention to the intense movements and sounds of children, soap bubbles, air, a research camera and trees. Thinking through the concept of aesthetic flux, our study experiments with the abundance, indeterminacy and potentiality of sensuous dynamics where bodies (human and otherwise) become together and linger. Thus, our study reconfigures aesthetics as a creative and unpredictable force that materialises in both embodied and conceptual ways in environmental education and research with children.

**Keywords:** aesthetic flux, sensuous dynamics, intensity, environmental education, more-than-human, post-qualitative, child–environment relationalities

## **Introduction**

Children are regularly occupied with exploring their surroundings through their sensing bodies by playfully and experimentally tasting, touching, moving and making sounds with materials and things. There is a tradition within environmental educational research that recognises and enquires into these sensuous dimensions of children’s engagement in outdoor environments (Beery and Jørgensen 2018; Malone 2020). Within this tradition, sensory experiences are emphasised as essential for environmental learning and relating, such as for understanding biological connections and biodiversity (Auer 2008; Beery and Jørgensen 2018) and for building meaningful relationships with outdoor landscapes (James and Bixler 2008; Linzmeyer et al. 2013). However, these notions of engagement have commonly been grounded in a humanistic understanding of the environment as a non-agentic backdrop for children’s sensing and learning, cultivating romanticised and harmonious notions of human–nature connections (Malone 2016; Rousell and Cutter-Mackenzie-Knowles 2020). Much as these studies open up the manifold benefits of children engaging sensorially with outdoor environments, posthuman research suggests that a focus on more-than-human relationalities and material agencies is needed to fully recognise the abundance of children’s embodied and material enmeshment within the messy, tension-laden, unpredictable and rapidly changing conditions of their lifeworlds, which emerge through a multitude of childhoods (Malone 2016; Rautio et al. 2017; Rousell and Williams 2020, 2023).

Although posthuman studies offer much-needed insights into the material relationalities of environmental education, Rousell and Cutter-Mackenzie-Knowles (2020, 2023) question whether they sufficiently consider the sensory and experiential qualities of children’s lifeworlds. The authors argue that a more ‘robust engagement with aesthetics’ through diverse philosophical perspectives is needed (2020, 1657). As Malone (2020, 529) suggests, children communicate with both humans and non-humans through their sensing bodies and ‘carry the material entanglement of their lives with others’ with them. Similarly, Häggström’s (2019) study highlights how human’s relationships with different milieus, such as forests develop from childhood, through situated movements, bodily sensations and an embodied intertwining with the more-than-human. Furthermore, Kumpulainen et al. (2021, 2023) show that aesthetic and embodied dimensions are significant for children’s ecological imagination and for their concern and compassion with non-human others. Therefore, it seems worthwhile to incorporate more-than-human aesthetic attuning into environmental education and research. In many posthuman educational studies, concepts like atmospheres, affects and intensities allude to what aesthetically unfolds through encountering bodies and materials (Dernikos et al. 2020; Hickey-Moody 2013; Rousell and Cutter-Mackenzie-Knowles 2020). Yet, aesthetics as a concept is used sparingly in environmental education

literature, and how to approach aesthetics from more-than-human sensuous perspectives remains only scarcely theorised (Iared et al. 2016; Rautio 2013; Rousell and Cutter-Mackenzie-Knowles 2020, 2023).

Abram (2017, 19) describes ‘a world all alive, awake and aware’, suggesting that bodies and matter can sensuously reach into and grasp each other and compares this more-than-human dynamic with magic or mesmerising. In this study, we introduce the idea of ‘aesthetic flux’ to draw attention to and explore the keen sensuous dynamics of children and more-than-human matter. Our curiosity about aesthetics as a creative, intense and unpredictable force that materialises in both embodied and conceptual ways was stirred by a storying workshop with a class of first graders in a Finnish primary school, in which blowing soap bubbles in the neighbouring forest became both an exciting and a frustrating event. When the children blew soap bubbles, their bodies needed to blow air softly with a rhythm and force that would coax the soapy water to expand. Often, only soap foam spattered from the loops in the wands. But occasionally, an assembly of remarkable, thin, opalescent spheres emerged and flitted upwards before bursting. The movements, expressions, tonalities and rhythms of soapy water, bubbles, trees, a research camera and the children intrigued us, and we started to wonder about such intense sensuous dynamics and their significance for environmental education. Inspired by post-qualitative, arts-based research practices, which emerge through a nexus of researching and artistic creation (Knight 2019; Lorimer 2013; MacRae 2019; Malone 2019; Rousell et al. 2020), we creatively experimented with video recordings from the workshop. Through a process of visual-sonic montaging that entailed video and sound editing, as well as charcoal drawing and ink painting, we delved into the reciprocal sounding and moving of children and more-than-human matter with an emphasis on non-representational, affective, multisensory, and bodily dimensions. The idea of aesthetic flux started to take form through our empirical experimentations with the storying workshop in the forest and became entwined with the literature we were reading.

Aesthetic flux can be seen as the sensuous and affective intensity of a mutual immersion (Ingold 2007) or double capture (Deleuze and Parnet 2002) of encountering matter and bodies. This concept draws on a medley of theories that take inspiration from posthuman, relational and phenomenological perspectives and that are grounded in more-than-human sensuous aesthetics. While phenomenology and posthumanism differ ontologically, the combination becomes possible by extending the understanding of bodies to involve a more-than-human dispersed kind of embodiment (Neimanis 2018). Thus, our inquiry approaches children’s movements and sensuous engagements with environments as a more-than-human responsiveness that emerges from bodies and matter materialising through a shared expressive vitality (Bennett 2010), recognising ‘the body as an event’ and children as bodies in movement (Levin 2016, 199). Rather than being enclosed or static, these bodies fluctuate with, leak into and absorb their surroundings (Abram 2017; Ingold 2007; Neimanis 2018; Levin 2016). In other words, aesthetic dimensions and sensuality do not reside locked within children or environments; rather, they move through and with the multitude of assembling and dispersing bodily, material and conceptual formations of educational sites and practices (Levin 2016; Neimanis 2018). These more-than-human sensuous dynamics range from

intense to more subtle degrees, depending on constantly shifting material, political and cultural assemblages (Bennett 2001; Hoogland 2014; Manning 2009). Thus, thinking through the idea of aesthetic flux emphasises the material movements and fluidities of encountering bodies and the sensuous effects of such dynamics.

We use the idea of aesthetic flux as a body-mind provocation to approach child–environment relationalities differently, allowing this provocation to remain open-ended and dynamic. Beyond being theorised, aesthetic flux is also sensed and performed, materialising into visual sonic montages that invite the reader to also sense and move with us. Thus, our paper works towards tentative renderings of what the sensuously captivating intensities of bodies, materials and environments might perform and create in environmental education and research with children.

### **Relational, sensuous and embodied dimensions of children and environments**

Our study was inspired by previous research from posthuman and relational perspectives that points to aesthetics and sensation as dynamic and complex, more-than-human phenomena. From a posthuman perspective, children and their living environments, or any other materials, things and bodies, do not exist as separate agencies; rather, they emerge through mutually transformative encounters (Dernikos et al. 2020; Hultman and Lenz Taguchi 2010; Rautio et al. 2017). In a project mapping children’s affective responses to climate change, Rousell and Cutter-Mackenzie-Knowles (2020) use the notion of ‘ecological aesthetics’ when referring to this more-than-human relationality between children and their environments, which they suggest is continuously changing and can be aesthetically sensed. ‘Bodies sensing ecologically’ is another related idea proposed by Malone (2019), who discerns how children engage and respond sensorially with the more-than-human world, based on video episodes from a visit to the aquarium with two-year-old Wren. This is described as a performative type of aesthetics that emerges through the rhythms and movements of children’s embodied openness, curiosity and wonder towards the more-than-human lifeworlds they are part of (Malone 2019).

Such previous research acknowledges a certain playful mode of aesthetic attentiveness to the more-than-human world, which often comes spontaneously and carries pedagogical potency (Malone 2019; Phillips 2020; Rautio 2013). For example, in Rautio’s (2013) paper, stones are not seen as mere objects but rather as material agents that invite children into sensuous play with them. Rautio uses the example of children and stones to describe how non-human matter can make children act in certain ways, and how this creates unpredictable differentiations for both children and matter. Similarly, Merewether (2019), who followed young children’s enchanted animism in a kindergarten setting, found that trees, rocks and clouds aroused the children to encounter and explore non-human others as sentient and communicative beings. In addition, Pyyry (2017) taps into the dynamic potential of children’s sensuous relating to matter. She describes how her son came to be in awe of some broken glass on the street, and argues that such enchanting moments work as affective disruptions with transformational

potential. Meanwhile, Phillips (2020), who investigated touch encounters during urban walks led by primary school children, writes that lingering with the relational stickiness of materials and sites evokes an embodied responsiveness to the abundance and indeterminacy of more-than-human mattering. Together, these studies underline how sensuously engaging with the liveliness of socio-ecological worlds enables children to notice other beings and materiality and to imagine their own potential becoming and transformation in relation to them.

While also concerned with the sensuous relationality of children and matter, Hackett and Rautio (2019), as well as Jørgensen and Martiny-Bruun (2020), are critical of approaches that overlook children's experiences of being separate from the more-than-human world. Hackett and Rautio (2019), who studied sound and movement in young children's literacy practices, refer to the 'double-bind of entanglement and difference' and suggest that different versions of children and matter are continuously performed in more-than-human correspondence. Jørgensen and Martiny-Bruun (2020), in turn, studied refugee children in Denmark who participated in artwork sessions with sustainability themes and found that outdoor artistic activities in a daycare centre created sensuous aesthetic relationships that allowed room for the ambiguity of human–nature relationships, which involved experiences of both relationality and separateness. Another intricacy can be found in the study by Renlund et al. (2022), which shows how child–environment aesthetic encounters involve both attracting and repelling dimensions, which transform according to the temporal, material and climatic movements of different human and non-human bodies and materials. The study suggests that children's sensuous attuning and engagement with non-human matter involve shifting constellations of enchanting and adverse dimensions (Renlund et al. 2022). Such studies challenge understandings of child–environment relationality as consistent and harmonious flows of sensuous relating and provoke us to consider further the multiple, varied and continuously changing ways in which children sense their lifeworlds.

This previous research provides important insights into the more-than-human, diverse and complex sensuous intensities of children and environments. Nevertheless, both theoretical and empirical questions remain, and we suggest that posthumanist and phenomenological perspectives create productive tensions that can help us recognise the sensory and embodied ways children live and learn as enmeshed within socio-ecological worlds. By paying closer attention to and further developing aesthetic perspectives through a more-than-human lens, we can create new insights into the dynamics of children, matter and environments and what they perform in environmental education and research with children.

### **Storying workshop with soap bubbles in the forest**

The storying workshop of our inquiry took place in a first-grade class in a Finnish primary school and was attended by 18 children aged 6–7 years and their teacher. We started the workshop indoors in the classroom early one morning in December 2021 by reading aloud a storybook about a soap bubble which happens to drift into a forest and invite children to join the adventure. During the reading, we projected the images from the storybook onto the

classroom wall, making the book's illustrations part of the space. The Kupla (Bubble) picture book was written and illustrated as part of our research and development, which aims at promoting young children's multiliteracies and ecological imagination (Byman et al. 2020). Our research team participated in the creation of the book, which was purposefully designed to encourage multisensory and playful engagement with the surrounding environment (Finnish and Swedish versions of the book can be downloaded for free from [here](#)). During the reading session, as part of the book's storyline, we encouraged the children to help the Bubble with various predicaments—to jump and dance with the Bubble, to help the hungry Bubble find food and to hug the Bubble and its friends. The children were eager to follow these invitations.

After the reading, we all gathered in the hallway to put on our winter clothes to go on a walk in the forest with the Bubble and its friends. We walked from the schoolyard onto a gravel path that led into the forest behind the school. The school is situated in an urban residential area interlaced with parks, forests, hills and small streams. Like in most urban environments in Finland, this area offers lively more-than-human assemblages, which can be sensed through sounds and activities. Sound pollution from the nearby highway carries into the forest, litter can be found on the ground, depending on the season, small animals or insects roam in the bushes and trees, and people frequently walk or bike along the forest paths. Like many other primary schools in Finland, there are no restricting fences between the school and the neighbourhood, which encourages the children to explore the nearby forest and hills during lunch breaks and outdoor playtime. This meant that the children were quite at home in this forest and knew where we were going. It was a cold morning, and the sun was just rising, shining a low light through the bare tree branches. The children talked excitedly as we walked, and although we were moving in familiar landscapes, there was a sense of adventure. Like many other European countries, Finland had strict distancing rules and restrictions on school visitors during the COVID-19 pandemic. These first-grade students had begun their school journey during pandemic lockdowns, and the local forest and classroom had become a somewhat isolated space for them. This was the first time they had visitors from outside the school, and the children were eager to talk to us.

Soon, we arrived at a forest clearing, which was familiar to the children—a favourite place, according to the teacher. While the cold prickled our fingers and faces, making our breath emerge in steamy puffs, we placed a few video cameras at the edges of the forest clearing to record our activities and those of the children. Then, we walked around assisting the children by handing them wands made of wire to blow soap bubbles with and pouring soapy water in small bowls. The children flocked around the bowls, dipped their wands in the bowls and blew soap bubbles. Although we had asked the children to go outdoors to imagine and create new adventures for the Bubble and its friends earlier in the classroom, the children did not mention the book when we were in the forest. We, the adults, also did not remind the children of their task; rather, we wanted to give them room to just play and explore freely with the soap bubbles. During these outdoor activities, the soapy water, soap bubbles and trees seemed to hold a strong sensuous pull, and most of the children were fully engaged with blowing and following soap bubbles. In addition, the research cameras became enticing material agencies

that the children approached playfully and experimentally by moving them around and blowing soap bubbles towards them.

While informed consent was obtained from all participants and the children's guardians and our study follows the ethical guidelines of research practices, we are mindful of the colonising effects of using video recordings during research with children (Kind 2013). Kind (2013) writes about the camera's violent gaze when approached in the representational mode of capturing or evidencing some objectified, external and separate others, suggesting more sensuous haptic modes of engaging with the camera in research with children. Similarly, Malone (2019) argues that the researcher can use video recordings to attune in new ways to the 'sensorial ecological encounters' of children and their lifeworlds. At the beginning of the workshop, we showed the children how the research cameras work and how they could notice when the cameras were recording. During the workshop we invited children who were interested in using the cameras to walk around filming with them, and we did not restrict the children from playfully engaging with the cameras during the workshop. In this way, we viewed the research cameras as something more than just tools for recording. Rather than approaching video data as representing something, this means understanding the cameras and moving images as more-than-human assemblages with affective and performative agency in relation to the research participants and the researchers (Caton 2019; Kind 2013; Lorimer 2013; Malone 2019).

The recordings from the activities in the forest, amounting to 35 minutes, became essential for us as researchers to continue to move with and sense the dynamic movements of children, air, bubbles, trees and the research camera through video and sound editing. Our analytic practices also continuously involved the first author, as a visual artist, creatively attuning to the movements and sounds in the video recordings through ink painting and charcoal drawing, resulting in 75 minutes of additional recordings from her drawing and painting sessions. In the next section, we describe the significance of these artistic experimentations as creative research practices for exploring aesthetic flux.

### **Sensing and performing aesthetic flux through visual-sonic montaging**

As Knight (2019) notes, creative research practices are just a partial entry 'into the milieu, to notice some of what goes on without claiming to represent some kind of truthful or whole account of the time-place' (142). Experimenting with video and sound editing, as well as drawing and painting, scrambled our sensory engagement with the empirical materials, allowing us to move with the studied events and get a sense of the slowness, speed, agility, rhythm, grace, twisting and shifting of material and sonic textures, tonalities and vibrations through the perspective of the camera, various computer software apps, as well as charcoal and ink on paper (Lorimer 2013; MacRae 2019; Rousell et al. 2020).

Our empirical experimentation and theorisation of aesthetic flux entailed engaging with the video recordings during several recursive readings of intently listening to, watching and

moving with the delicate and multiple details of acoustic and mobile layers. The first author explored shifting constellations of bodies and matter in the recordings through video and sound editing software. She tried different ways of experimenting with the recordings, by slowing them down, speeding them up, playing them backwards and zooming in on different parts of the shots. MacRae (2019) suggests that this kind of playful approach to video data ‘offers a philosophical medium that de-centres the human body in relation to the passage of time’ (3), enabling ways to ‘speculate otherwise’ (11). Similarly, Jukes et al. (2022) propose that creatively working with video recordings can offer researchers embodied ways to think further with the more-than-human materiality and flux of events and landscapes, allowing these events a continued affective performativity within the study. To protect the participating children’s anonymity, filters and creative cuts were applied to the clips, resulting in further de-centring of individual children and an emphasised focus on the dynamics of more-than-human acoustic and mobile relations (see also Tembo 2023). Charcoal drawing and painting with ink became embodied media that transmuted these movements and sounds in the recordings to those of crumbling charcoal and wet brush strokes on paper (Knight 2019; Rousell et al. 2020). Through such artistic experimentations of visual-sonic montaging, we could corporeally and imaginatively experiment with and explore the sensuous intensities, complexities and synergies of children and matter (Knight 2019; MacRae, 2019; Rousell et al. 2020).

As the analytic process developed, the first author crafted visual-sonic montages by putting together edited sound clips with video clips from the workshop and from the drawing and painting sessions. Throughout these processes, the first author invited the team of authors to sense and think with the transforming artistic creations. A sense of performativity and transformation is profoundly present in such post-qualitative and arts-based analysis work (Rousell et al. 2020). Rather than representing past events, the visual-sonic montages create a stratum of new relations (Tembo 2023), in which a plethora of affective moments mingle. In this sense, the bodies of the researchers become implicated as part of the knowledge creation, commingling within the rich material-discursive assemblages of children, forest, cameras, recordings, computer software, charcoal, ink and paper (Caton 2019; Kind 2019). Moreover, transformative sensuous dynamics were performed throughout these artistic research practices, creating an aesthetic flux that continues to resonate as the materialising montages themselves perform new sensations and ideas (Kind 2013; Caton 2019). Thus, we invite readers to move with the visual and sonic unfolding of the montages and to cross the threshold to their virtual becoming, imagining how the step, the beat, the crack and the cry can further morph as aesthetic flux.

### **Moving and sounding assemblages of air, soap bubbles, a research camera, children and trees**

Next, we introduce the figurations of aesthetic flux that materialise through our visual-sonic montages. Although we cannot say for certain what the children might have sensed when blowing soap bubbles in the forest, the material expressions and movements in these

moments resonate with theories of more-than-human sensuous aesthetics. We experiment and think through four montages, each opening up various theoretical and empirical explorations of aesthetic flux. As our idea of aesthetic flux develops, we explore the deterritorialising, abundant, unpredictable, contagious, lingering and tension laden material and temporal dynamics and intensities of bodies and matter coming together in the workshop. Through these four montages we also follow five children, Max, Diana, Hugo, Otto and Vilho (pseudonyms), and delve into the expressive movements and sounds of their sensuous engagements with more-than-human matter.

### ***Following the expressions of an iridescent sphere***

In our first montage we creatively experiment with the movements of a soap bubble that drifts upwards and Max's body stretching towards the bubble (see figure 1 and the connecting visual-sonic montage in the supplemental data).

**Figure 1.** Sensuous surrender



We imagine how our charcoal drawings trace the sensuous dynamics of Max's breath, metamorphosing with soapy water into an iridescent sphere, and of wind, making the bubble dance between trees, and of Max's bodily movements as he follows the bubble. As Neimanis (2018, 55) argues, 'other animal, vegetable and planetary bodies...materially flow through us, replenish us, and draw upon our own bodies'. Similarly, Ingold (2007) writes about a material flux that binds and mingles all earthly beings and matter. Although air often goes unnoticed, thinking through a more-than-human aesthetic perspective, air holds aesthetic potentials beyond its nourishing qualities (Abram 2017). This is not to say that air performs individual aesthetic expressions; rather, it draws attention to how the movements of air corresponding with moving children, the gravitational pull of earth, soap bubbles and trees became sensuously significant as part of the more-than-human assemblages in our workshop. Aesthetic flux can be seen as such sensuous and intense dynamics.

This idea of aesthetic flux resonates with Levin (2016) who writes about aesthetics as an ‘intensive relation between sensation, movement and expression’ revealing ‘sensation as an infinite movement’ (185). The infinite movement of sensation is a Deleuzian concept that aims to describe the performative and pre-individual dimensions of sensation (Levin 2016). From this perspective, bubble moving and Max jumping are not understood as individual acts from pre-existing bodies; rather, they emerge from an aesthetically responsive relationality (Levin 2016), a mutual immersion (Ingold 2007). As Deleuze proposes when theorising the double capture, an encounter means that matter and bodies ‘steal’ from each other while performing deterritorialisation and differentiation (Deleuze and Parnet 2002). In our recordings, something akin happens with what we perceive as a child, air and a bubble. A responsive and expressive more-than-human choreography emerges, in which air, the bubble and Max move in accordance with each other, challenging our tendency to split them into separate bodies or beings. The air, the soap bubble and Max are ongoing differentiations within a creative vitality, not separate or static, but unsettled and fluctuating expressions of shifting relationalities, performing multiple textures and qualities of matter (Deleuze 1994; Ingold 2007). Associating with Malone’s (2019) work, they are ‘bodies sensing ecologically’, communicating and transforming through a sensuous responsiveness that ‘speaks’ of their relationality with each other. Sintonen (2020) writes similarly about the aesthetics of playing with kites, how there is meaning in the way the body moves in relation to the landscape, the air and the kite and that these movements are expressions of environmental relationalities, gravitational forces and material blends. Such sensuous ecologies lead us to approach children as continuously becoming-of-the-world and sensation as the expressive dynamic of this becoming.

At times, such expressive dynamics achieve an intensity (Manning 2009), an aesthetic flux that makes a felt difference. More intense moments create something that can be described through Bennett’s (2001, 5) definition of enchantment; they perform a ‘condition of exhilaration or acute sensory activity’. Such moments might be seen as events of giving in to the deterritorialisation of the body—a kind of embodied surrender that materialises as movement towards an otherness by sensuously extending into something else, an emphasised merging and diffusing of bodies. As Hoogland (2014, 2) writes, ‘it has to do with a willingness—even if paradoxically an involuntary form of willingness-to be taken out of what one considers to be one’s self, to encounter that which is other’.

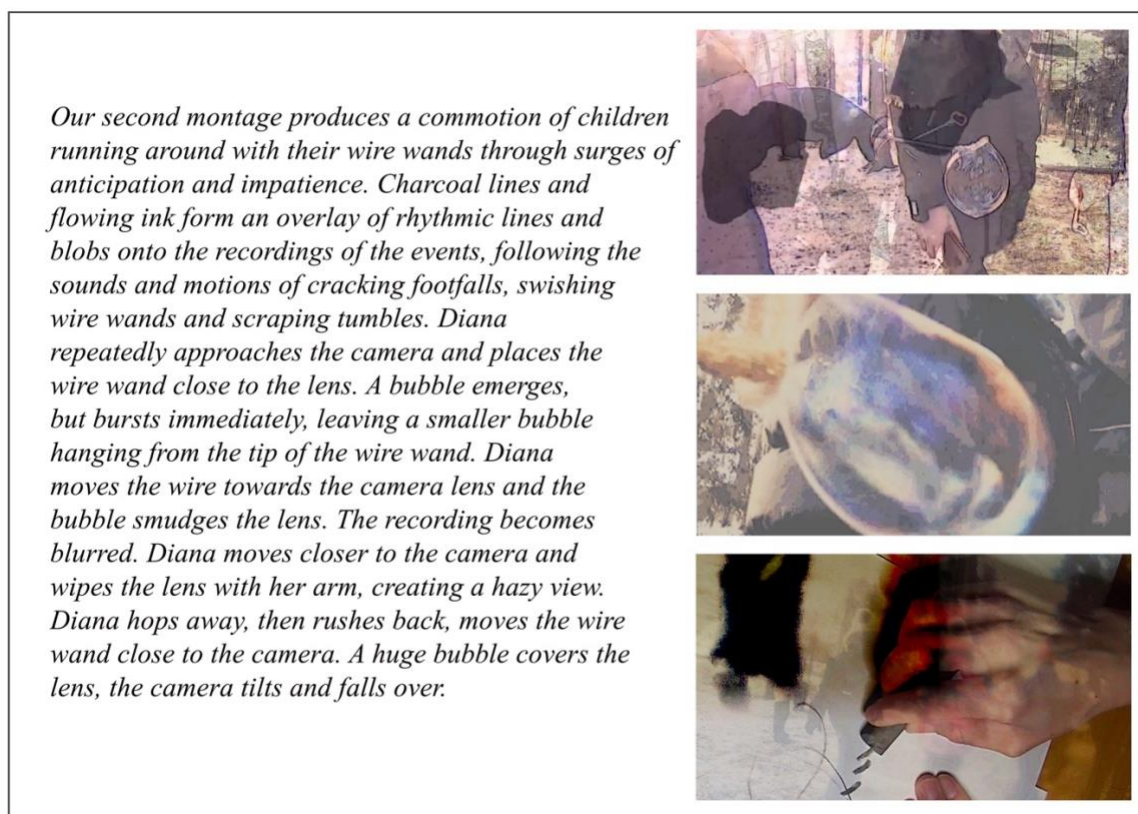
Whilst our montaging hovers with the expressions of air, the soap bubble and Max, Bennett (2010) reminds us how the material force of things that ‘shimmer and spark’, does not simply reside within them; it emerges through a nexus of matter, bodies and ideas coming together. Although the movements of air, bubbles and children became sensuously significant in our workshop, such aesthetic flux never simply occurs or stays contained between the relational becoming of certain materials or bodies. With these thoughts we return to the recordings and notice the hum of traffic sounds, children’s winter overalls swishing, twigs breaking and the low yellow light. We wonder how we, the researchers and our cameras and storybook, affected the children in this favourite forest clearing after many months of isolation due to the

pandemic. Hence, we cannot accredit the movements and sounds of the workshop to any individual bodies or material substances; they emerge as ‘the product of an assemblage - which is always collective, which brings into play within us and outside us populations, multiplicities, territories, becomings, affects, events’ (Deleuze and Parnet 2002, 38).

### ***The material gravitas and potentiality of breath, soapy water and camera***

Our second montage explores the bustle of soapy water, wire wands, cold air, the research camera and Diana as they move and sound together (see figure 2 and the connecting visual-sonic montage in the supplemental data)

**Figure 2.** Swarming abundance



Depending on how we zoom in, zoom out or cut the recording, the bouncing movements of Diana, the camera and the bowls of soapy water take various expressive forms. We become fascinated by the multiple expressions of soapy water, merging with air, breath and camera: expressions of iridescent light, splattering, smudging, tilting and back-and-forth motions. Charcoal lines and ink on paper follow the admixtures of such momentary formations as the more-than-human dynamics in the recordings move us researchers, producing multiple entwined layers of aesthetic flux. Through the movements we consider how the cold air affects both Diana and the soapy water but in different ways, making Diana’s face and fingers stiff and numb and challenging her movements with the water and the wand. But it also potentially makes the bubbles freeze into sparkling ice globes. We notice Diana’s continuous

persistence with the activity of blowing soap bubbles. Something more than just producing actual bubbles must fuel the engagement, since her efforts mostly result in a mere discharge of soap foam. This intense sensuous engagement suggests some kind of titillating dynamics between the imagined bubble and the endless expressive potentialities that might emerge through the breath, cold air, soapy water and camera.

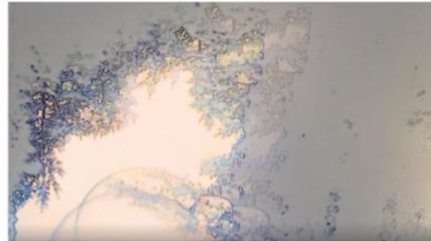
In this way, aesthetic flux moves us beyond specific aims or tasks, to a material gravitas and the sensuous promise of rich, expressive creation. As Deleuze (1994, 211-212) suggests, the virtual ‘designates a pure multiplicity’ and ‘always takes place by difference’, wherein lies the deterritorialising and reterritorialising power of aesthetic flux. Such transmutations can induce a sense of wonder at the world, of something unexpected emerging that might shift children’s sense of boundaries and structures (Bennett 2001). Similarly, Pyyry (2017) writes about the unpredictability that is part of enchanting moments and suggests that surprise triggers curiosity, questioning and exploration. Likewise, we propose that material abundance and potentiality provoke an anticipation and an eagerness to engage and connect that goes beyond human intention. Therefore, within aesthetic flux, there resides an absence of rational objectives or predefined purposes. While often fleeting, intense sensuous engagement in its open-ended dynamism can give a glimpse of multiple connections and formations that challenge taken-for-granted perceptions of the world and reveal a relational field of swarming potentials.

*A swerving, swaying, sounding more-than-human collective*

Our third montage engages with a shared intense moment when a group of children, the researchers and the teacher follow a soap bubble in the forest (see figure 3 and the connecting visual-sonic montage in the supplemental data).

**Figure 3.** Contagious sonority

*In our third montage, a shimmering bubble swerves higher towards the trees, almost hitting the trunks and branches but several times missing and continuing the journey. A group of children follow the bubble, becoming a moving, sounding collective. Charcoal and ink follow these sounds and movements, distorting the forms of children, the bubble, and the trees, making them diverge and resonate within one another. From the soundtrack we hear yells oohs and aahs as the bubble moves. More children come running from different directions, jumping, and swaying with the bubble, gazes turned upwards towards the treetops. "Mayday, mayday" is yelled in a chorus followed by relieved sighs, as the bubble drifts towards and barely misses some sharp pine needles. Waves of collective intensity and relief are repeated several times, until the soap bubble bursts against a branch. Then the general mood shifts as children, researchers, and the teacher scatter, forming more dispersed constellations.*



The first author lets the children's repeated cries in this swarming of bodies and matter move her through charcoal drawing and ink painting. The children seem to sense the bubble's material fragility within this transitory moment, their bodies attuning to its evanescence through sounding and moving. We can sense peril and commitment in the rhythmic surges and declines in children's vocal vibrations, and we let these affective resonances drift into the montaging. Bennett (2001, 166-167) draws on Deleuze and Guattari to connect the sonorous to enchantment and suggests that chanting and singing can 'provide sensory access' to help us tap into the 'groove' of lively matter and 'reveal the cosmological energetics operative within and amidst the self'. Such expressive responses can be understood as movements towards otherness and difference (Hoogland 2014), making it possible to sense and respond to an ongoing and changing vitality that saturates the coming together of both human and non-human bodies (Bennett 2001). The children yelling 'mayday' in chorus as the bubble flits towards sharp, pointy branches becomes a sonorous energy that swells within us, the researchers, when we experiment with the recording's soundtrack.

Deleuze and Guattari (1987, 311) describe singing and chanting as 'a rough sketch of a calming and stabilizing, calm and stable, center in the heart of chaos'. They further write that 'what chaos and rhythm have in common is the in-between...rhythm is critical; it ties together critical moments, or ties itself together in passing from one milieu to another' (313). Thinking through the idea of aesthetic flux, the rhythmic trembles of this intense moment create an aesthetic territory that becomes contagious (Deleuze and Guattari 1987). Not only does non-human matter create this pull, but human bodies also resonate within each other and draw each other into the movements. Children joining in feed, extend and enrich the sensuous dynamism of the moment, provoking other children, the researchers and the teacher to follow

and form into a sensing mass of sounds and movements. Thus, a contagious sonority that expresses upheaval and transition resonates through the forest.

Although this moment trembles and stirs, there are also elements of sensuously slowing down and becoming absorbed. As the children follow the bubble that veers between the trees, nearly hitting the branches but missing and continuing its dance and as we the researchers continue to engage with these movements through our montaging, the rest of the world seems to recede. This connects to how Bennett (2001, 5) defines enchantment as ‘a state of wonder...a momentarily immobilizing encounter; it is to be transfixed, spellbound’. There is an ‘inexhaustible liveliness’ and dance (Barad 2007, 246) of capture and movement in such moments that engages with diverse temporal rhythms. This challenges a linear notion of what aesthetic flux could mean. Rather than back and forth movements between different bodies and matter feeding into each other, this instead points to a continuous overlapping and immersion of multiple sensuous and expressive assemblages (MacRae 2019; Manning 2009). As Barad (2007, 180) suggests, ‘matter is enfolded into itself in its ongoing materialisation’. We researchers can sense ourselves as part of this enfolding while working with the montages through flickering video clips, crumbling charcoal and flowing ink, sensing and performing multiplicities of material and temporal expressions that overlap and produce a commingling of densities, durations, rhythms and speeds.

#### ***Bursting bubbles, swift moves and sensuous lingering***

With our fourth and last montage we explore how the soap bubble and its movements through the forest continued to resonate as aesthetic flux in different ways with Hugo, Otto and Vilho’s moving bodies (see figure 4 and the connecting visual-sonic montage in the supplemental data).

**Figure 4.** Lingering expressions

*Our fourth montage follows the events after the shared intense moment, when the bubble has burst against a tree branch. Hugo, Otto, and Vilho linger with the moment, playfully moving their bodies and describing the bubble's incredible swiftness and agility. In this montage charcoal drawing and ink creates strokes and fields of black that frame and intensify these material expressions. Hands are raised in exasperation, sharp branches, yellow sunlight, illuminated bubbles, shaking heads, smiling faces, and children's bodies swerving and dancing. Through the soundtrack we hear eager descriptions of the amazing bubble moving gracefully between trees, but also angry accusations as Hugo and Otto discuss the event; "you made the bubble hit the branch"; "you said we should blow the bubble forward". Hugo and Vilho both approach the researchers and move their arms and bodies like swift bubbles, dodging trees.*



Rather than focusing on how the children's movements represent the bubble's movements, our visual-sonic montaging explores how aesthetic flux reverberates in the forest clearing through zigzagging intensities of excitement, eagerness, frustration and disappointment. When following the movements and sounds in the recordings, we can sense how the bursting of the bubble elicits strong responses and how its material metamorphosis continues both to enchant and to upset. Although the bubble has become splattered against a tree trunk, Hugo, Otto and Vilho continue to move with the bubble. Thus, the bubble's sensuous influence seems to endure, morphing into various imagined forms and multiplying into further expressions of rhythms, beats, puffs, cries, strokes, shifts and gazes. This tells of how the rich flux of hues and textures during intense moments can create a sensuous lingering, a 'capacity to retain qualities even after its perishing within an actual occasion' (Manning 2009, 24). However, this does not refer to a static movement of qualities from one event to another, rather suggests 'repetition with a difference' with the potential to materialise in various complex ways through other events and matter (Manning 2009, 25).

Phillips (2020) writes about aesthetic relishing or savouring and how it can shift material understandings and create new insights. As our visual-sonic montaging suggests, such aesthetic savouring does not necessarily mean that the sensuous intensities that linger on are simply pleasurable or agreeable. Rather, an abundance of intensities mingles and collides in tension-laden ways (Renlund et al. 2022). These tensions make evident how aesthetic flux does not occur as neatly bundled expressions or forms but rather materialises into messy and contradictory blends of matter and ideas. Phillips (2020, 1636) suggests that 'it is the ambiguity that invites exploration'. Similarly, Bennett (2001, 104-105) writes that 'the charm

of wonder commingles with the discomfiting frustration of dealing with nonlinear events and dissipative structures resistant to understanding and prediction’.

We propose that within the tensions of matter moving in unexpected or surprising ways, children might also sense the kind of separateness that Jorgensen and Martini-Bruun (2020) write about. Drawing on Merleau-Ponty, Jorgensen and Martini-Bruun (2020, 1413) suggest that children and the world form chiasmic relationships in which the child is simultaneously ‘sensing the world and being sensed by it’. This constitutes a combination of recognition and strangeness. In such a way, simultaneous subjectivity and relationality, and the sense of being different or separate is an integral part of children’s relational becoming within the world. Moreover, as more-than-human collectives are formed, various kinds of separations emerge, with the potential to also repel and exclude certain material expressions and minglings. In our inquiry and its materials, we can sense some children becoming captivated and drawn in, while others remain at the edges; some huddle together, while others remain dispersed, some move swiftly, while others tread more carefully. The differentiating qualities of these sensuous and expressive dynamics do not follow an anthropocentric logic of firm boundaries between human and non-human beings; rather, they involve social, cultural, material and political complexities and dissonances (Hackett and Rautio 2019; Jørgensen and Martini-Bruun 2020). If we disregard the differentiating and separating dynamics of aesthetic flux, we also miss the effort, the hard work and the discomfort that is part of children’s sensing and moving as part of the world.

## **Aesthetic flux in educational research and practice**

In this study, the concept of aesthetic flux acted as a philosophically, theoretically and methodologically productive idea for inquiring into the intense sensuous dynamics of more-than-human matter and bodies during a storying workshop in a Finnish primary school. Although the moments that we explored emerged through a specific socio-ecological situatedness involving children blowing soap bubbles in the forest, the idea of aesthetic flux can be put to work when exploring the range of intensities and tonalities of encountering bodies and matter and the sensuous effects of such dynamics. Next, we consider the significance of aesthetic flux for environmental education and research and beyond.

While, in many ways, mundane and insignificant, the material complexity and sensuous richness of a translucent and ephemeral soap bubble, flitting and veering between trees, has the power to grip both children and adults into sensuous play and engagement. Thinking through the concept of aesthetic flux, our study experiments with its abundance, indeterminacy and potentiality to produce intense more-than-human sensuous responsiveness and expression, becoming contagious and lingering. At the same time, our study recognises how such aesthetic dynamics can also be exasperating and create a range of disturbances, clashes, separations and exclusions. Consequently, aesthetic flux does not mean that what unfolds is automatically good, innocent or uncontroversial. In fact, our previous work brings forth how children’s shimmering and enchanting encounters with the forest involved an

entwinement of beautiful and pleasurable dimensions with discordant, troubling, scary and repulsive dimensions (Renlund et al. 2022). Malone and Crinall (2023) remind us that the ways of human and non-human relating and enchantment are multiple and complicated, involving vulnerabilities, joys and disturbances.

It is important to keep these complex and conflicting dimensions of aesthetic flux in mind in environmental education, especially when acknowledging the contagious and lingering effects of more-than-human sensuous dynamics. This requires cultivating an aesthetic attentiveness and sensitivity within environmental education that does not necessarily come easy or always feel nice; rather, it involves educators and children learning to accept and respond to unpredictability, messiness, contradictions and conflicts (Byman et al. forthcoming; Malone and Crinall 2023). Such approaches become essential for developing education that takes on current environmental and social challenges in ways that acknowledge embodied encounters and situated knowledge with the more-than-human world as valuable and important in our shared endeavours towards more sustainable futures. UNESCO's (2021) review of how environmental issues are integrated in education suggests a need for holistic pedagogies that go beyond a focus on cognitive skills as part of environmental learning. We propose that this requires recognising and considering the sensuous power of matter and environments that children and their educators are also part of.

A persistent understanding of aesthetics within environmental education as something superficial, abstracted and distanced, overlooks the material, social, political and ethical dimensions of aesthetic forces (Rousell and Cutter-Mackenzie-Knowles 2023). However, as our study suggests, the more-than-human sensuous richness of aesthetic flux can awaken material and environmental curiosity and exploration. Often children are more inclined to such playful embodied and material experimentations, than adults who have become striated by conventional humanist norms. Through intense sensory engagement and attentiveness, children, as well as educators and researchers might sense how their bodily expressions entwine with diverse material constellations and what leaking into and moving as part of more-than-human assemblages creates (Neimanis 2018). Following the shimmering force of more-than-human matter and allowing sensuous play bears the potential of surprise and novelty, while also being risky and tension laden, requiring an acute ethical responsiveness (Malone and Crinall 2023). However, the option of working against such vibrant opportunities seem to be a waste of creative potential in our current socio-ecological predicaments. Bennett (2001) points out that what is needed within the complexity of contemporary life is an aesthetic openness and attentiveness to dynamic and often surprising situations and relations, as well as a generosity and willingness to cultivate imaginaries beyond the human. In fact, including sensuously and materially grounded perspectives into environmental educational research and practice becomes particularly relevant in our current times, in which children's sensed perceptions are being radically reworked due to complex socio-ecological and environmental changes (Malone 2016; Rousell and Williams 2020).

To conclude, the aesthetic flux that materialised through our inquiry carried an unruly flow and power, moving collectives of human bodies, inspiring transformations, and eliciting

strong responses. This ongoing and aesthetically infused mattering requires environmental education to acknowledge aesthetics as productive for developing practices of learning and relating beyond the human, not as separate from children's everyday environments, but commingling with them and creating both more-than-human collective engagements and creative differences, offering the potential to become otherwise. Such more-than-human aesthetic influences that travel within and through children and environments diverge from the often clean, controlled and individualised human-centric aesthetic perspectives of curricula and educational practices (Komulainen et al. 2020; Rousell and Cutter-Mackenzie-Knowles 2022). Consequently, our study contributes to environmental education by reconfiguring aesthetics as a creative and unpredictable force with world-building potential, and by theorising that what sensuously affects and becomes meaningful in child–environment relationalities, emerges through continuously shifting and differentiating expressions of more-than-human matter, which ceaselessly nurture, assemble as well as tear and diffuse bodies and environments. Our research prompts further questions. We suggest that future studies can inquire, through more-than-human aesthetic perspectives, into the sensuous mingling of diverse and lively materials and bodies, such as digital technologies, art, stories and different living beings, and how they become part of feeding, extending and affecting the aesthetic flux of various educational sites and practices.

### **Acknowledgements**

We offer our warm thanks to the group of children and the teacher who took part in our workshop and in this study.

This research was funded by the Maj and Tor Nessling Foundation, grant number 202100303 (Renlund); KONE Foundation, grant number 202008316 (Kumpulainen, Byman, Wong, Renlund) and the Academy of Finland, grant number 339458 (Kumpulainen, Byman, Wong, Renlund).

### **Conflicts of interest**

The authors declare that this research was conducted in the absence of any commercial or financial relationships that could be construed as potential conflicts of interest.

### **Ethics approval statement**

This study follows the ethical standards of the Finnish Advisory Board on Research on Integrity (<https://www.tenk.fi>) and was reviewed and approved by the Education Division of the City of Helsinki (HEL 2019-008574 T 13 02 01). Informed consent was obtained from all participants and the children's guardians. Pseudonyms were used for all participants.

## References

- Abram, David. 2017. *The Spell of the Sensuous*. New York, Toronto: Penguin Random House.
- Auer, Matthew R. 2008. "Sensory Perception, Rationalism and Outdoor Environmental Education." *International Research in Geographical and Environmental Education* 17(1):6–12. <https://doi.org/10.2167/irgee225.0>.
- Barad, Karen. 2007. *Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning*. Durham: Duke University Press.
- Beery, Thomas, and Kari A. Jørgensen. 2018. "Children in Nature: Sensory Engagement and the Experience of Biodiversity." *Environmental Education Research* 24(1):13–25. <https://doi.org/10.1080/13504622.2016.1250149>.
- Bennett, Jane. 2001. *The Enchantment of Modern Life: Attachments, Crossings, and Ethics*. Oxford: Princeton University Press.
- Bennett, Jane. 2010. *Vibrant Matter: A Political Ecology of Things*. Durham, NY: Duke University Press.
- Byman, Jenny, Kristiina Kumpulainen, and Jenny Renlund. Forthcoming. "Lingering with Multispecies Kin: Re-turning to Encounters of Children, Invertebrates and Amphibians." In "Relational Ontologies and Multispecies Worlds: Transdisciplinary Possibilities for Environmental," edited by Kathryn Riley, Scott Jukes, and Pauliina Rautio. *Australian Journal of Environmental Education*.
- Byman, Jenny, Jenny Renlund, Kristiina Kumpulainen, Mari Keso, Sara Sintonen, Jenni Vartiainen, Heidi Sairanen, and Alexandra Nordström. 2020. Kupla/ Bubblan. Pedagogical material. MOI-The Joy of Learning Multiliteracies, University of Helsinki.
- Caton, Lucy Catherine. 2019. "Video Data Sensing: Working Post Qualitatively in Classroom Based Video Inquiry." *Video Journal of Education and Pedagogy* 4 (1): 23–45. <https://doi.org/10.1163/23644583-00401001>.
- Deleuze, Gilles. 1994. *Difference and Repetition*. Translated by Paul Patton. London: Athlone Press. (Original work published 1968)
- Deleuze, Gilles, and Felix Guattari. 1987. *A Thousand Plateaus: Capitalism and Schizophrenia*. Translated by Brian Massumi. London: University of Minnesota Press.
- Deleuze, Gilles, and Claire Parnet. 2002. *Dialogues II*. Translated by Hugh Tomlinson and Barbara Habberjam. London, New York: Continuum. <https://books.google.fi/books?id=fDpFPwAACAAJ>.
- Dernikos, Bessie P., Nancy Lesko, Stephanie D. McCall, and Alyssa D. Niccolini. 2020. "Feeling Education." In "Mapping the Affective Turn in Education: Theory, Research and Pedagogies," edited by Bessie P. Dernikos, Nancy Lesko, Stephanie D. McCall, and Alyssa D. Niccolini, 3–27. New York: Routledge. doi:10.4324/9781003004219
- Hackett, Abigail, and Pauliina Rautio. 2019. "Answering the World: Young Children's Running and Rolling as More-than-Human Multimodal Meaning Making." *International Journal of Qualitative Studies in Education* 32(8):1019–1031. <https://doi.org/10.1080/09518398.2019.1635282>.
- Hickey-Moody, Anna. 2013. "Affect as Method: Feelings, Aesthetics and Affective Pedagogy." In "Deleuze and Research Methodologies," edited by Rebecca Coleman and Jessica Ringrose, 79–95. Edinburgh: Edinburgh University Press. <https://edinburghuniversitypress.com/book-deleuze-and-research-methodologies.html>
- Hoogland, Renée C. 2014. *A Violent Embrace: Art and Aesthetics after Representation*. Hanover: Dartmouth College Press.

- Hultman, Karin, and Hillevi L. Taguchi. 2010. "Challenging Anthropocentric Analysis of Visual Data: A Relational Materialist Methodological Approach to Educational Research." *International Journal of Qualitative Studies in Education* 23(5):525–542. <https://doi.org/10.1080/09518398.2010.500628>.
- Hägström, Margaretha. 2019. "Lived Experiences of Being-in-the-Forest as Experiential Sharing with the More-than-Human World." *Environmental Education Research* 25 (9): 1334–46. <https://doi.org/10.1080/13504622.2019.1633275>.
- Iared, Valéria G., Haydée T. de Oliveira, and Phillip G. Payne. 2016. "The Aesthetic Experience of Nature and Hermeneutic Phenomenology." *The Journal of Environmental Education* 47(3):191–201. <https://doi.org/10.1080/00958964.2015.1063472>.
- Ingold, Tim. 2007. "Earth, Sky, Wind, and Weather." *Journal of the Royal Anthropological Institute* 13 (s1). <https://doi.org/10.1111/j.1467-9655.2007.00401.x>.
- James, J. Joy, and Robert D. Bixler. 2008. "Children's Role in Meaning Making Through Their Participation in an Environmental Education Program." *The Journal of Environmental Education* 39(4):44–59. <https://doi.org/10.3200/JOEE.39.4.44-59>.
- Jørgensen, Nanna J., and Asger Martiny-Bruun. 2020. "Painting Trees in the Wind: Socio-Material Ambiguity and Sustainability Politics in Early Childhood Education with Refugee Children in Denmark." *Environmental Education Research* 26(9–10):1406–19. <https://doi.org/10.1080/13504622.2019.1602755>.
- Jukes, Scott, Alistair Stewart, and Marcus Morse. 2022. "Following Lines in the Landscape: Playing with a Posthuman Pedagogy in Outdoor Environmental Education." *Australian Journal of Environmental Education* 38 (3–4): 345–60. <https://doi.org/10.1017/aee.2021.18>.
- Kind, Sylvia. 2013. "Lively Entanglements: The Doings, Movements and Enactments of Photography." *Global Studies of Childhood* 3 (4): 427–41. <https://doi.org/10.2304/gsch.2013.3.4.427>.
- Knight, Linda. 2019. "Playing: Inefficiently Mapping Human and Inhuman Play in Urban Commonplaces." In "Feminist Research for 21st-Century Childhoods: Common Worlds Methods," edited by Denise B. Hodgins, 139–148. Bloomsbury Academic. <https://doi.org/10.5040/9781350056602>.
- Komulainen, Kauko Pekka, Sara Sintonen, Seija Kairavuori, and Aleksi Ojala. 2020. "Approaching the Renewed Finnish Basic Education Curriculum as a Potential and an Option for Aesthetics." *Educare*, no. 1 (March): 34–52. <https://doi.org/10.24834/educare.2020.1.3>.
- Kumpulainen, Kristiina, Jenny Renlund, Jenny Byman, and Chin-Chin Wong. 2021. "Empathetic Encounters of Children's Augmented Storying across the Human and More-Than-Human Worlds." *International Studies in Sociology of Education* 31(1-2): 208-230. doi:10.1080/09620214.2021.1916400.
- Kumpulainen, Kristiina, Chin-Chin Wong, Jenny Byman, Jenny Renlund, and Jennifer Vadeboncoeur. 2023. "Fostering Children's Ecological Imagination with Augmented Storying." *The Journal of Environmental Education* 54(1):33–45. doi:10.1080/00958964.2022.2152407.
- Levin, Kasper. 2016. "Aesthetic Movements of Embodied Minds: Between Merleau-Ponty and Deleuze." *Continental Philosophy Review* 49(2):181–202. <https://doi.org/10.1007/s11007-016-9376-2>.
- Linzmayr, Cara D., Elizabeth A. Halpenny, and Gordon J. Walker. 2014. "A Multidimensional Investigation into Children's Optimal Experiences with Nature." *Landscape Research* 39(5):481–501. <https://doi.org/10.1080/01426397.2012.751094>.

- MacRae, Christina. 2019. “‘Grace Taking Form’: Re-Animating Piaget’s Concept of the Sensori-Motor through and with Slow-Motion Video.” *Video Journal of Education and Pedagogy* 4 (1): 151–66. <https://doi.org/10.1163/23644583-00401003>.
- Malone, Karen. 2016. “Reconsidering Children’s Encounters with Nature and Place Using Posthumanism.” *Australian Journal of Environmental Education* 32(1):42–56. doi:10.1017/ae.2015.48.
- Malone, Karen. 2019. “Worlding with Kin.” *Video Journal of Education and Pedagogy* 4 (1): 69–80. <https://doi.org/10.1163/23644583-00401011>.
- Malone, Karen. 2020. “Children in the Anthropocene: How Are They Implicated?” In “Research Handbook on Childhoodnature : Assemblages of Childhood and Nature Research,” edited by Amy Cutter-Mackenzie-Knowles, Karen Malone, and Elisabeth Barratt Hacking, 507–533. Springer International Handbooks of Education. Cham: Springer International Publishing. [https://doi.org/10.1007/978-3-319-67286-1\\_36](https://doi.org/10.1007/978-3-319-67286-1_36).
- Malone, Karen, and Sarah Crinall. 2023. “Children as Worlding but Not Only: Holding Space for Unknowing and Undoing, Unfolding and Ongoing.” *Children’s Geographies*, June, 1–15. <https://doi.org/10.1080/14733285.2023.2219624>.
- Manning, Erin. 2009. *Relationescapes: Movement, Art, Philosophy*. 1st ed. Cambridge: MIT Press. <https://mitpress.mit.edu/9780262518000/relationescapes/>
- Merewether, Jane. 2019. “Listening with Young Children: Enchanted Animism of Trees, Rocks, Clouds (and Other Things).” *Pedagogy, Culture & Society* 27(2):233–250. doi:10.1080/14681366.2018.1460617.
- Merleau-Ponty, Maurice. 1968. *The Visible and the Invisible*. Translated by Alphonso Lingis. Evanston, IL: Northwestern University Press.
- Neimanis, Astrida. 2018. “Posthuman Phenomenologies for Planetary Bodies of Water.” In “A Feminist Companion to the Posthumanities,” edited by Cecilia Åsberg and Rosi Braidotti, 55–66. Cham: Springer International Publishing. [https://doi.org/10.1007/978-3-319-62140-1\\_5](https://doi.org/10.1007/978-3-319-62140-1_5).
- Phillips, Louise G. 2020. “Sticky: Childhoodnature Touch Encounters.” In “Research Handbook on Childhoodnature,” edited by Amy Cutter-Mackenzie-Knowles, Karen Malone, and Elisabeth Barratt Hacking, 1619–1638. Springer International Handbooks of Education. Cham: Springer International Publishing. [https://doi.org/10.1007/978-3-319-67286-1\\_90](https://doi.org/10.1007/978-3-319-67286-1_90).
- Pyry, Noora. 2017. “Thinking with Broken Glass: Making Pedagogical Spaces of Enchantment in the City.” *Environmental Education Research* 23(10):1391–1401. <https://doi.org/10.1080/13504622.2017.1325448>.
- Rautio, Pauliina. 2013. “Children Who Carry Stones in Their Pockets: On Autotelic Material Practices in Everyday Life”. *Children’s Geographies* 11(4):394–408. <https://doi.org/10.1080/14733285.2013.812278>.
- Rautio, Pauliina, Riikka Hohti, Riitta-Marja Leinonen, and Tuure Tammi. 2017. “Reconfiguring Urban Environmental Education with ‘Shitgull’ and a ‘Shop.’” *Environmental Education Research* 23(10):1379–1390. <https://doi.org/10.1080/13504622.2017.1325446>.
- Rousell, David, and Amy Cutter-Mackenzie-Knowles. 2020. “Uncommon Worlds: Toward an Ecological Aesthetics of Childhood in the Anthropocene.” In “Research Handbook on Childhood Nature: Assemblages of Childhood and Nature Research,” edited by Amy Cutter-MacKenzie-Knowles, Karen Malone, and Elisabeth Barratt Hacking, 1657–1679. Cham: Springer. doi:10.1007/978-3-319-67286-1.
- Renlund, Jenny, Kristiina Kumpulainen, Chin-Chin Wong, and Jenny Byman, 2022. “Stories of Shimmer and Pollution: Understanding Child–Environment Aesthetic Encounters

- in Urban Wilds.” *Children’s Geographies*. [Online] ahead-of-print, 1–15.  
<https://doi.org/10.1080/14733285.2022.2121914>
- Rousell, David, and Amy Cutter-Mackenzie-Knowles. 2023. *Posthuman Research Playspaces: Climate Child Imaginaries*. 1st ed. London: Routledge.  
<https://doi.org/10.4324/9781003336006>.
- Rousell, David, Alexandra Lasczik, Peter J. Cook, and Rita L. Irwin. 2020. “Propositions for an Environmental Arts Pedagogy: A/r/tographic Experimentations with Movement and Materiality.” In “Research Handbook on Childhood Nature: Assemblages of Childhood and Nature Research,” edited by Amy Cutter-Mackenzie-Knowles, Karen Malone, and Elisabeth Barratt Hacking, 1815–1843. Cham: Springer.  
 doi:10.1007/978-3-319-67286-1
- Rousell, David, and Dilafruz Williams. 2020. “Ecological Aesthetics: New Spaces, Directions, and Potentials.” In “Research Handbook on Childhood Nature: Assemblages of Childhood and Nature Research,” edited by Amy Cutter-MacKenzie-Knowles, Karen Malone, and Elisabeth Barratt Hacking, 1603–1618. Cham: Springer.  
 doi:10.1007/978-3-319-67286-1
- Sintonen, Sara. 2020. “Paperileija olemisen mietiskelynä.” *Aikuiskasvatus* 40(2):147–151.  
<https://doi.org/10.33336/aik.95456>.
- Tembo, Shaddai. 2023. “Affective Sociomaterialisation: An Inquiry into Early Childhood Subjectivities within Outdoor Early Childhood Provision in Scotland, UK.” PhD diss., University of the West of Scotland.
- UNESCO. 2021. *Learn for Our Planet: A Global Review of How Environmental Issues Are Integrated into Education*. Paris, France: UNESCO.  
<https://unesdoc.unesco.org/ark:/48223/pf0000377362>

### **Figure captions**

Figure 1. Sensuous surrender

Figure 2. Swarming abundance

Figure 3. Contagious sonority

Figure 4. Lingering expressions