



Encouraging Finnish early childhood education student teachers to sense their everyday environments through photo-walks

Markus Hilander^a

^a Faculty of Educational Sciences, University of Helsinki, Helsinki, Finland
Email: markus.hilander@helsinki.fi

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Abstract

This article addresses the persistent challenge in early childhood teacher education of moving beyond nature–human dualisms toward more relational, posthumanistic understandings of the environment. To examine how such thinking can be fostered, the study investigates a photo-walk assignment completed by 104 Finnish early childhood education student teachers, who produced 55 essays and accompanying photographs reflecting on their immediate surroundings. Using reflexive thematic analysis, the study explores how the student teachers interpreted their photo-walk experiences, which environmental education themes they drew upon and what conceptual or practical difficulties emerged. The findings show that when student teachers meaningfully engaged with the task, they identified nonhuman traces, material and sensory invitations and metaphoric re-worldings that decentred human agency. The essays also highlighted inquiry-based exploration, multispecies relations, sensory and seasonal awareness and the pedagogical potential of everyday urban environments. However, the analysis also revealed conceptual misunderstandings of posthumanism, a tendency toward aestheticised landscape photography and challenges in operationalising relational noticing. The study concludes that photo-walks can support the development of environmental sensitivity and more-than-human awareness, but explicit pedagogical scaffolding is needed. These insights offer practical implications for designing learning activities that strengthen relational, multisensory and place-based approaches in early childhood education.

Keywords: Early Childhood Education, Environmental Education, Environmental Sensitivity, Everyday Environments, Multisensory Learning, Photo-Walks, Posthumanistic Thinking, Student Teachers

1. Introduction

It is hypocritical to claim that humans belong to nature or that the built environment counts as part of the environment.

This remark illustrates how some university students still position humans as external to nature and the built environment as something other than the environment itself. Offered by a Finnish early childhood education student

teacher in 2025, the comment prompted us to reflect on why such separations persist, even though humans are increasingly recognised as integral components of the natural world rather than a distinct category outside it (Kurle et al., 2023). Recent posthumanistic perspectives further emphasise the importance of fostering non-hierarchical relations with other-than-human beings (Kervinen et al., 2024). These considerations raise a central question for teacher education: how might posthumanistic thinking be meaningfully introduced to early childhood education student teachers – and, more specifically, how can it be translated into the practical, everyday pedagogical work carried out with young children?

The latter question is, in some ways, more approachable, as children naturally explore their surroundings through curiosity, movement and play. Pyry et al. (2017, p. 269) describe in their Finnish book chapter how even a familiar garden can invite both children and adults into shared moments of play when attention shifts toward the material and sensory invitations of the environment:

From a posthumanistic perspective, play does not arise solely from human initiative. Rather, the environment invites the human into the event of play. A seedling pushing up through the soil, a newly opened flower, the smoothly worn handle of a rake, a leaf rendered fragile by the sun – these elements of the environment, in all their wonder, inspire and evoke emotional responses. Plants are not only pleasant to look at, but also to touch and smell. They elicit action and invite humans to immerse themselves in a shared moment.

In this article, we examine how a photo-walk conducted in student teachers' immediate surroundings encouraged them to observe a familiar environment from a new perspective. We are particularly interested in how the act of photographing prompted them to engage with their surroundings and to recognise who – and what – else inhabits those spaces. The photo-walk also served as a basis for an essay assignment in which the student teachers reflected on the forms of environmental and sustainability education they hope to implement with young children in early childhood settings. The research questions guiding this study are:

RQ1: In what ways do the student teachers connect and articulate their experiences of the photo-walk in relation to a post-humanistic approach?

RQ2: Which themes, topics and content related to environmental education do the student teachers address in their essays based on the photo-walk experience?

RQ3: What sorts of challenges and misconceptions related to posthumanistic thinking emerge in the student teachers' essays and photographs?

This study contributes to early childhood environmental education by exploring how a simple, low-resource visual and experiential method – photo-walks – can support student teachers in developing relational, sensory and place-based understandings of their everyday environments. In what follows, we outline the theoretical background that informs our analysis, describe the participants, materials and analytic procedures, present the findings in relation to the research questions, and discuss the study's contributions, limitations, implications and directions for future research.

2. Theoretical background

The environment is a key yet conceptually multifaceted notion in geography and environmental education (Bayne, 2018; Hilander, 2023; Tani, 2013). In everyday language, *nature* and *environment* are often conflated, making it difficult for student teachers to differentiate between them and to move beyond dualistic nature–human framings (Braidotti, 2019; Chawla, 2020; Heikkinen et al., 2024). Such dualisms may hinder the adoption of relational and posthumanistic perspectives, where environments are understood as dynamic, interconnected and co-constituted rather than as separate domains.

Recent scholarship challenges dichotomies such as *child vs. nature*, *culture vs. environment*, or *indoors vs. outdoors*, and instead emphasises children's relational, embodied and situated engagements with place (Byman, 2026; Pyry and Tani, 2019; Roy, 2026). Posthumanist and new materialist approaches conceptualise

children as emerging *with* their material, ecological and sociocultural environments. Everyday practices – such as children picking up stones – illustrate how agency is distributed across human and nonhuman bodies (Jordan and Jónsson, 2025; Rautio, 2013). Similarly, Rautio et al. (2017) demonstrate how environment–child relations arise from entangled assemblages of materials, affects, infrastructures, animals and discourses (see also, Pacini-Ketchabaw et al., 2016). These perspectives recast environments not as static backdrops but as affective and political processes that shape what children can sense, feel and become.

Multisensory and embodied orientations in early childhood learning further highlight the significance of children’s full-bodied engagements with the world. Sensory modes such as touch, movement, sound, smell, temperature and affective attunement are central to how children explore and make meaning (Byman, 2026; Chawla, 2020; Kuo et al., 2019; Rautio, 2013). Material encounters – textures, weights, temperatures – invite action, speculation and world-making (Chartrand, 2026; Iared and Venturi, 2025; Sidebottom and Mycroft, 2024). Finnish environmental education studies emphasise children’s sensory openness, inquiry and embodied exploration as foundations for early scientific and environmental learning (Kaasinen and Kervinen, 2025; Kervinen et al., 2024). Such multisensory noticing provides the conditions through which children form attachments to their environments and generate meaningful questions (Chawla, 2020; Kuo et al., 2019).

These theoretical perspectives resonate with the Finnish early childhood education and care (ECEC) curriculum (Finnish National Agency for Education, 2022), which highlights holistic learning, children’s agency and the pedagogical value of local natural and built environments. Everyday surroundings – neighbourhoods, parks, waterfronts and digital environments – are understood as intertwined spaces for learning shaped by children’s curiosity, sensory experiences and embodied actions (Baryosef-Paz and Gan, 2026; Kuo et al., 2019). Within geography education, experiential and field-based approaches foreground learning through situated observation and embodied environmental engagement, while visual and

participant-generated methods, such as photography and mental maps, function as reflexive tools for exploring spatial experience and positionality through interpretive and narrative meaning-making (Bonato, 2025; Giacomelli and Pesaresi, 2025; Pyyry, 2015; Pyyry et al., 2017; Pyyry et al., 2021).

In this study, *posthumanism* is approached as an orientation that positions humans as integral parts of nature and the environment (Kurle et al., 2023), rather than as an external category. Our aim was to encourage student teachers to recognise the multispecies and material character of their immediate surroundings and to develop *environmental sensitivity* – an attunement to how environments affect them and how they might foster similar sensitivity among children (Chawla, 2020; Kim, 2019; Hilander et al., 2025; Pacini-Ketchabaw et al., 2016). We use the term *posthumanistic thinking* to denote orientations aligned with posthumanism without committing strictly to its philosophical canon (see, Miele and Bear, 2025). These orientations provide the conceptual foundation for analysing how student teachers interpreted their everyday environments through the photo-walk assignment.

3. Methodology

In this section, we introduce the participants, describe the dataset they produced and outline the use of reflexive thematic analysis as our research method.

3.1. Participants

The participants (N=104) were Finnish second-year early childhood education student teachers at the University of Helsinki. They were enrolled in a course on environmental and sustainability education in spring 2025. To complete the course, they were required to write a final essay reflecting on the kind of environmental and sustainability education they wished to implement with children. The instructions stated that the essay should be written in pairs, although some student teachers chose to write individually. No background information was collected, and although submitting the essay was mandatory, granting consent for its use in research was voluntary.

3.2. Research materials

In total, 55 essays were submitted with research consent, resulting in a dataset comprising 311 pages – including the lists of references. Each essay was required to include one photograph taken in the student teachers' immediate environment. The background for taking the photograph comes from the idea of a photo-walk. A *photo-walk* refers to a research practice in which participants move through their everyday environments and take photographs as part of an embodied, multi-sensory engagement with place. In this approach, photographs do not function merely as representations but as performative moments that can prompt reflection and new ways of sensing the everyday environment (Pyry, 2015; Pyry et al., 2021). To help the student teachers grasp the idea of viewing their immediate environment from a new and fresh angle, an instruction by Professor of Biodiversity Education Pauliina Rautio (2025) was shared, originally written in Finnish. We introduced the instruction to the student teachers as *posthumanistic photography* (Table 1).

Ultimately, the purpose of the photo-walk was to encourage the student teachers to notice aspects of their everyday environment that had previously gone unnoticed, to foster a sense of curiosity and engagement with their immediate surroundings – both natural and built – and to prompt reflection on their relationships with human and non-human beings. Through this process, they would consider how the insights gained during the photo-walk could inspire them to advocate for environmental education.

In our dataset, the student teachers describe the forms of environmental and sustainability education they wish to implement, drawing on both the photographs they took and the texts they wrote. The student teachers' written accounts played a crucial role in supporting our interpretation of the photographs; without these texts, it would have been impossible to determine the meanings of the photographs. Although the dataset comprises two different media – visual material (photographs) and written material (essays) – we analyse the dataset as a single, integrated whole.

Posthumanistic photography

How radically would we need to *misuse* urban space in order to better notice all the other beings who live here, and to discover how we might inhabit the city more respectfully alongside them?

1. Choose a starting point.
2. Find yourself a local guide: any local presence other than another human being.
3. Follow your guide for twenty minutes (bearing in mind that, depending on whether your guide is an ant, a squirrel, a sparrow, a dandelion or the sounds of the city, 'guidance' may involve many forms of movement – physical movement or movement through thoughts and memories).
4. When the time is up, consider where you have arrived, how the place now feels, and what new insights you have gained about it.
5. Take a photograph during your journey.

Table 1. The instruction to explore the everyday environment from a fresh perspective. Source: adapted and modified from Rautio, 2025.

3.3. Reflexive thematic analysis

As our analytical approach, we employed *thematic analysis* (TA), in which Braun and Clarke (2019, 2021; see also 2006, 2012) emphasise the importance of reflexivity throughout the entire analytic process. Thematic analysis is not reducible to a single, uniform method, and therefore we drew specifically on *reflexive thematic analysis* (RTA), in which "coding is open and organic, with no use of any coding framework" (Braun and Clarke, 2021, p. 334). It is essential to acknowledge the subjective nature of the analysis, as the researchers' interpretations are inherently present in identifying codes and in developing both preliminary and final themes. As Braun and Clarke (2021, p. 330) emphasise, the researcher's subjectivity is an analytical resource.

Our analytic process followed the guidelines outlined by Braun and Clarke (2021), although the phases were partly overlapping. We first familiarized ourselves with the dataset and produced initial notes. Next, we marked all segments of the data that we considered meaningful – what Braun and Clarke (2021, p. 331) refer to as “systematic data coding”. A code is not defined in a strictly fixed manner, but it commonly refers to a segment of data that offers a perspective on the topic and can be used in developing preliminary themes. From the coded data, we first constructed tentative themes, which we then refined, reformulated, and named as the analysis progressed (Braun and Clarke, 2021). A theme refers, for instance, to a shared meaning that is united by a central concept or idea (Braun and Clarke, 2019); themes are, in a sense, the stories that the dataset tells (Braun and Clarke 2021, p. 341). A condensed version of the codes and themes is presented in Table 2.

The themes were developed through reflexive thematic analysis focusing exclusively on essays in which posthumanistic reasoning was substantively present. Rather than assuming posthumanistic alignment across the full dataset, the analysis adhered to the principle of analytic fidelity: themes were generated inductively from portions of the data where nonhuman agency, environmental invitations and metaphorically enriched more-than-human relations were explicitly articulated.

4. Results

In this section, we address our research questions. Specifically, in Section 4.1, we answer the first research question concerning the ways in which the student teachers constructed their arguments and connected the photo-walk to a posthumanistic approach. In Section 4.2, we answer our second research question regarding the environmental education themes, topics and content that the student teachers engaged with through the photo-walk. Finally, in Section 4.3, we describe the challenges the student teachers encountered when attempting to apply

posthumanistic thinking in their photo-walks and essays.

4.1. Posthumanistic ways of interpreting the photo-walk experience

4.1.1. *Nonhuman traces and trajectories guiding the movement*

In several essays, student teachers described their movements during the photo-walk as shaped, redirected or prompted by nonhuman agents whose presence asserted itself materially in the environment. Most explicitly, footprints and animal paths acted as guides, prompting student teachers to follow their lines of motion and thereby decentring human intentionality (Pacini-Ketchabaw et al., 2016). One student teacher recounted how “the rabbit tracks led us between the apple trees and towards the woods” (Figure 1), foregrounding how a more-than-human trail initiated the route’s direction rather than the walker’s own plan.

Likewise, Figure 2 illustrates a city pigeon photographed during a student teacher’s photo-walk in an urban environment: “I kept walking behind the pigeon as it searched for food; for a moment, it felt as if it was showing me how it lives here.” This example illustrates the theme “Nonhuman traces and trajectories guiding the movement” by demonstrating how agency is attributed to a nonhuman actor. Rather than positioning the pigeon as a passive object of observation, the student teacher describes the bird as actively shaping the route, pace and focus of the walk. The photograph, together with the reflective text, exemplifies how movement and attention emerge through multispecies encounters, aligning with posthumanistic interpretations of distributed agency. These two examples (Figures 1 and 2) position animals not as background scenery but as active shapers of spatial experience (Rautio, 2013; Rautio et al., 2017).

Examples of codes	Themes	Research questions	
Footprints and trails Guiding paths	Nonhuman traces and trajectories guiding the movement	RQ1 Posthumanistic ways of interpreting the photo-walk experience	
Wind and light Texture	Material and sensory invitations		
Storying Imagination Symbolism	Metaphoric and narrative re-worlding		
Inquiry Curiosity Noticing	Exploration, observation and wonder as foundations for environmental learning		RQ2 Environmental education themes addressed through the photo-walk
Species traces Coexistence	Learning about local ecosystems and multispecies relations		
Seasonality Weather Senses	Sensory engagement and seasonal awareness		
Cityscape Waterfront Parklands	Urban nature and the everyday environment as pedagogical contexts		
Care and empathy Respect	Environmental responsibility and empathy		
Dualism and separation Side-by-side	Conceptual misunderstandings of posthumanism	RQ3 Challenges in interpreting and applying posthumanistic thinking	
Idyll and vista Aestheticism	Idealised and aestheticised photographs of the environment		
Representation Object-focus Scenery-first	Difficulties operationalising posthumanistic principles during the photo-walk		

Table 2. Through reflexive thematic analysis, we identified codes within the dataset, which subsequently informed the development of the themes. Source: Author's elaboration.

Additionally, in one account, a student teacher noted how the shifting smells and scents of the farm subtly oriented the direction of movement, demonstrating how olfactory cues can exert a guiding influence within the environment. Another student teacher described how the motion of a scarf in the wind effectively determined the walking route, indicating how even seemingly mundane materials can become directional forces in situated navigation.

Through such narrative structures, student teachers reconstructed agency as distributed across species and materials, thus aligning with posthumanistic arguments that routes and decisions emerge from encounters rather than from autonomous human choice.

4.1.2. Material and sensory invitations

A second pattern emphasized material and sensory cues – wind, weather, textures, seasonal surfaces – as forces that oriented attention and generated interpretive possibilities. These descriptions framed environmental elements as affective invitations rather than passive conditions (Chawla, 2020; Kaasinen and Kervinen, 2025; Kervinen et al., 2024). One student teacher narrated how a child’s gaze was captured when “the daffodils moved in the wind, drawing our eyes to the yellow patches swaying in front of us” (Figure 3), subtly shifting agency towards atmospheric conditions. Others wrote of the way winter surfaces, such as snow, revealed nonhuman activity and invited speculative interpretation: “The double line of prints on the frozen lake made me imagine who had passed before me” (Figure 4). These sensory engagements show student teachers arguing through environmental atmospheres: they treat wind, light, movement and seasonal textures as co-constitutive of perception and meaning. Such reasoning echoes posthumanistic sensibilities by acknowledging that sensing and knowing emerge through human–nonhuman entanglements rather than solely through human cognition.



Figure 1. Rabbit tracks. Source: student teacher.



Figure 2. City pigeon. Source: student teacher.



Figure 3. Daffodils swaying in the wind. Source: student teacher.



Figure 4. Tracks on snow. Source: student teacher.

4.1.3. Metaphoric and narrative re-worlding

A third theme centres on metaphoric reasoning as a means of integrating photographic details into broader posthumanistic reflections (Braidotti, 2019; Taylor and Hughes, 2016). Student teachers used minor materialities – graffiti, weathered wood, scattered branches or animal traces – to construct narrative openings

into more-than-human worlds. For instance, one essay reinterpreted a weather-worn graffiti wall (Figure 5) as “a surface asking questions about who shapes this place and why”, attributing communicative force to the material environment. Similarly, the photograph of a duck pair in an urban shoreline (Figure 6) was interpreted as evidence of shared inhabitation: “They seemed to know this place better than we did, moving calmly among people as if reminding us that the city is also their home.” These metaphoric moves elevate material and nonhuman presences to conceptual partners (Pyyry, 2015; Pyyry et al., 2021; Rautio et al., 2017), enabling student teachers to argue that environments participate in world-making. Through such rhetorical strategies, student teachers employed metaphor not as ornamentation but as a relational practice – one that ties local ecological details to ethical, pedagogical and ontological considerations characteristic of posthumanistic thinking.

4.2. Environmental education themes addressed through the photo-walk

4.2.1. Exploration, observation and wonder as foundations for environmental learning

Many student teachers emphasised environmental exploration and observational practices typical of early childhood environmental education (Riley et al., 2024). They highlighted the importance of encouraging children to notice details, ask questions and engage in multisensory encounters with their surroundings (Chawla, 2020; Kaasinen and Kervinen, 2025; Kuo et al., 2019). These ideas align with accounts in the dataset describing nature, for instance, as “a multisensory, changing and present learning environment” that supports children’s curiosity and inquiry-based learning.

Through references to practices such as slow looking, listening to environmental sounds and observing traces on the ground, student teachers framed exploration and wonder not merely as outdoor activities, but as pedagogical tools that reinforce children’s environmental sensitivity and deepen their relationship with the environment (Riley et al., 2024).

4.2.2. Learning about local ecosystems and multispecies relations

Several student teachers reflected on how conducting the photo-walk prompted them to consider ways of supporting children's learning about local species, their traces and ecological interactions (Kervinen et al., 2024; Kopnina, 2022; Rautio et al., 2017; Sidebottom and Mycroft, 2024). Student teachers referred to situations in which children might follow animal footprints, observe birds in urban settings or consider how nonhuman beings inhabit shared spaces. For instance, the observation of a pigeon (Figure 2) was interpreted as a way to draw children's attention to urban multispecies coexistence and to reflect on how everyday environments include multiple forms of life.

This theme reflects broader goals in environmental education related to developing ecological literacy, empathy toward other species and an understanding of human communities as embedded within multispecies networks (Kopnina, 2022; Pacini-Ketchabaw et al., 2016).

4.2.3. Sensory engagement and seasonal awareness

Student teachers also highlighted the pedagogical value of sensory experiences – smells, sounds, textures and the embodied feel of weather conditions (Riley et al., 2024). These aspects were described as central to environmental education, particularly in early years settings. The essays frequently emphasised the importance of encountering different weather conditions, seasonal changes and natural materials, which were seen as opportunities to cultivate environmental sensitivity (Hilander et al., 2025; Kim, 2019) and attentiveness. As noted in one essay, varying weather and seasonal phenomena invite children to experience nature “experientially and concretely”. Such sensory and seasonal engagements are foundational in environmental education because they support children in recognising the dynamic character of local environments (Chawla, 2020; Kaasinen and Kervinen, 2025; Kim, 2019).

4.2.4. Urban nature and the everyday environment as pedagogical contexts

A further theme was the recognition that environmental education need not depend on remote or pristine natural areas. Student teachers working in urban settings reflected on how cityscapes, parks and waterfronts can serve as meaningful learning environments (Hilander and Tani, 2022; Hilander et al., 2025; Pyyry and Tani, 2019; Tani, 2013). The photo-walk made visible how children can learn from the everyday and built environments, such as observing ducks in an urban shoreline or following material traces left by human and nonhuman actors. The duck example (Figure 6), for instance, illustrated how children can develop understandings of urban ecosystems and nature–human entanglements within everyday places. This aligns with contemporary approaches to environmental education that stress place-based learning and the pedagogical value of the ‘nearby nature’ (Finnish National Agency for Education, 2022).



Figure 5. Graffiti wall. Source: student teacher.



Figure 6. Duck pair at an urban shoreline. Source: student teacher.

4.2.5. Environmental responsibility and empathy

Finally, several student teachers reflected on how their experiences during the photo-walk prompted ideas about how environmental education could initiate discussions with children about care, responsibility and environmental ethics (Stables, 2020). Encounters with animals, plants or human-made traces were linked to teaching children about respecting living beings, protecting habitats and understanding the consequences of human action. Essays also described how such encounters can foster environmental empathy (Chawla, 2020; Iared and Venturi, 2026), particularly when children imagine the experiences, needs or vulnerabilities of nonhuman beings. This moral and affective dimension of environmental education complements the more cognitive themes of observation and species knowledge, emphasising relational and value-based learning.

4.3. Challenges in interpreting and applying posthumanistic thinking

4.3.1. Conceptual misunderstandings of posthumanism

A recurrent challenge in the essays was a limited or inaccurate grasp of what post-humanistic thinking entails. While student teachers often referred to harmonious relations between humans and the nonhuman world, such statements remained largely anthropocentric in their framing (Stables, 2022). For instance, several essays included the idea that humans and nature live closely side-by-side. This formulation suggests a dualistic separation between humans and nature, positioning them as two distinct entities that coexist next to one another (Heikkinen et al., 2024; Kurle et al., 2023; Miele and Bear, 2025). From a post-humanistic perspective, however, such phrasing reflects a conceptual misunderstanding: human beings are not external to nature but are themselves part of the same material, ecological and relational mesh.

This challenge indicates that many student teachers approached posthumanism primarily as a call for appreciating nature or caring for the environment rather than as an ontological rethinking of human–nonhuman entanglements. Consequently, the essays often reproduced a human-centred hierarchy even when they attempted to move beyond it.

4.3.2. Idealised and aestheticised photographs of the environment

A second challenge became evident in the photographic material. Rather than capturing multispecies encounters, material agencies or environmental affordances (Raymond et al., 2017), many student teachers chose to photograph idealised, harmonious or aesthetically pleasing nature scenes (Lenz Taguchi, 2017) – for instance, sunsets, symmetrical tree lines, quiet open landscapes or other visually appealing vistas. Figure 7 shows a calm maritime view photographed during a photo-walk: “The photograph depicts a calm sea surrounding a pier, with tall tower buildings visible on the horizon.” This photograph–text pairing exemplifies the

theme “Idealised and aestheticised photographs of the environment”, where nature is framed primarily as a scenic backdrop for human reflection. While such photographs express emotional appreciation, they illustrate the difficulty some student teachers faced in operationalising post-humanistic relationality during the photo-walk.

The prevalence of these beautiful landscape photographs suggests that student teachers defaulted to conventional nature photography, where nature is framed as a passive backdrop for human contemplation (Lenz Taguchi, 2017; Pyry, 2015; Rose, 2023). This aesthetic orientation made it difficult for them to engage with the assignment’s intent: noticing traces, agencies and material presences that shape experience beyond human control. The preference for idyllic views also indicates that student teachers may understand nature primarily as a space of serenity and escape, rather than as a dynamic, multispecies environment in which humans are only one actor among many.



Figure 7. Calm maritime view from a pier. Source: student teacher.

4.3.3. Difficulties operationalising posthumanistic principles during the photo-walk

Finally, several essays revealed challenges in translating posthumanistic approach into concrete practices of observation during the photo-walk (Fox and Alldred, 2020; Taylor and Hughes,

2016). Even when student teachers referenced nonhuman elements, their accounts frequently treated these as objects of human attention rather than as actors influencing movement, direction or interpretation. Only a few essays recognised nonhuman traces – such as animal footprints or weather-shaped surfaces – as co-constitutive forces that guide or redirect experience.

Furthermore, many student teachers struggled to adopt a slower, more attuned mode of noticing (Pyry et al., 2021; Rautio, 2013), which the assignment aimed to foster. The tendency to focus on broad scenery rather than specific relational details suggests that student teachers may lack practice in recognising subtle forms of nonhuman agency, or that they were uncertain about what counts as posthumanistic thinking.

5. Conclusions and perspectives

5.1. Central results

This study examined how Finnish early childhood education student teachers engaged with posthumanistic thinking through a photo-walk conducted in their immediate surroundings. Three main findings emerged. First, when student teachers meaningfully engaged with the task, they interpreted the photo-walk in ways that foregrounded nonhuman traces, material and sensory invitations and metaphoric re-worlding. These interpretations suggest nascent orientations toward distributed agency and more-than-human relationality. Second, the photo-walk prompted student teachers to address diverse environmental education themes, including inquiry-based exploration, multispecies relations, sensory and seasonal awareness, the pedagogical value of the everyday urban environment and environmental responsibility. Third, the study revealed notable challenges: conceptual misunderstandings of posthumanism, a tendency to produce idealised and aestheticised nature imagery and difficulty operationalising post-humanistic principles during the photo-walk. Together, these results illustrate both the potential and the conceptual tensions that arise when introducing posthumanistic ideas into teacher education.

5.2. Key contributions

The findings resonate with existing scholarship showing that student teachers often approach the environment through dualistic nature–human framings (Chawla, 2020; Hilander, 2023). Many essays reproduced this dualism by positioning humans and nature as side-by-side rather than intrinsically entangled, reinforcing earlier studies suggesting that posthumanist ontologies remain challenging to grasp in educational contexts (Braidotti, 2019; Kopnina, 2022; Miele and Bear, 2025; Taylor and Hughes, 2016). The difficulty in recognising humans as integral components of nature aligns with Kurle et al. (2023), who argue that such conceptual reframing requires explicit pedagogical effort.

At the same time, the positive findings echo research highlighting the pedagogical value of sensory noticing, material encounters and multispecies entanglements in early childhood education (Kaasinen and Kervinen, 2025; Kervinen et al., 2024; Rautio, 2013). Student teachers who attended to footprints, weather, textures or animal trajectories demonstrated the kind of embodied, situated and relational noticing that environmental education scholars have identified as central to children’s ecological learning (Chawla, 2020; Kuo et al., 2019).

Moreover, the use of photography as a reflective tool is consistent with earlier work showing that visual methods can prompt new perceptions of everyday environments and foster environmental sensitivity (Hilander et al., 2025; Kim, 2019; Pyry, 2015; Pyry et al., 2021). The metaphoric and narrative re-worlding observed in some essays is also characteristic of posthumanistically oriented research, in which materials, multispecies encounters and places co-shape meaning and agency (Braidotti, 2019; Kopnina, 2022; Rautio et al., 2017).

The challenges in operationalising post-humanism during the photo-walk further support Braun and Clarke’s (2021) argument that interpretive work requires practice, scaffolding and reflexive engagement. Student teachers’ reliance on conventional landscape photography reflects entrenched cultural aesthetics that frame nature as an object for human contemplation, rather than as an active participant in shared

worldmaking. Thus, while the photo-walk opened possibilities for posthumanistic reasoning, it simultaneously revealed how deeply rooted representational habits can limit such engagement (Hilander, 2023; Rose, 2023).

5.3. Limitations and scope

Several limitations must be acknowledged. First, the dataset consists of self-reported written essays, which reflect student teachers’ interpretive choices rather than their immediate sensory or embodied experiences during the photo-walk. This may have resulted in selective reporting or retrospective rationalisation. Second, although photographs were included in every essay, the analysis relied heavily on student teachers’ textual accounts to interpret the visual material; the photographs alone did not always reveal the student teachers’ intended meanings. In addition, the use of photography as a predominantly human-operated and vision-centred method introduces a theoretical tension with posthumanistic aims, as photographic practices may inadvertently recentre human perception and intentionality even when the analytical framework seeks to decentre human agency. Third, the participants were second-year early childhood education student teachers at a single Finnish university, which limits the transferability of the findings to other cultural or institutional contexts. Fourth, the degree of engagement with posthumanistic ideas varied considerably among student teachers, and the study intentionally focused its thematic analysis on essays in which posthumanistic reasoning was substantively present. As a result, the themes do not represent the entire cohort’s thinking but rather the subset of essays with the strongest conceptual engagement. Finally, the use of reflexive thematic analysis means that the researcher’s own interpretations and theoretical orientations shaped the coding and theme development.

5.4. Pedagogical implications

Despite these limitations, the findings offer several practical implications for teacher education. First, the photo-walk can serve as an

accessible and pedagogically rich method for cultivating environmental sensitivity (Hilander et al., 2025; Kim, 2019) and multispecies awareness among future early childhood educators. By encouraging student teachers to attune to the material, sensory and relational dimensions of their everyday surroundings, such practices align with curricular aims emphasising holistic, experiential and place-based learning (Finnish National Agency for Education, 2022). Second, the conceptual challenges identified suggest that introducing posthumanistic thinking requires explicit scaffolding (Braidotti, 2019; Kopnina, 2022; Taylor and Hughes, 2016). Teacher educators may need to provide concrete examples, guided exercises and opportunities for iterative reflection to help student teachers move beyond anthropocentric interpretations. Integrating discussions of sensory noticing, nonhuman agency and relational ontologies into coursework could enhance student teachers' ability to recognise these dynamics during practical tasks. Third, the prevalence of aestheticised photographic representations indicates a need to disrupt conventional ways of seeing. Incorporating visual analysis tasks, critical discussions of nature photography or collaborative photo-walks may help student teachers attend more closely to relational details and multispecies interactions rather than focusing on scenic beauty.

5.5. Future research

Future research could deepen understanding in several ways. Longitudinal studies could investigate how repeated or scaffolded photo-walks influence student teachers' evolving conceptions of nature–human relations. Comparative studies across universities or cultural contexts would help assess the generalisability of the findings. Additional work could explore how photo-walks function when conducted jointly with young children, examining how children's sensory, embodied and imaginative engagements reshape student teachers' perceptions. Visual methodologies – such as participatory photography, multimodal analysis or video-based micro-ethnography – may also offer richer insights into the embodied and relational dimensions of environmental encounters. Finally, further research is needed to

identify pedagogical strategies that effectively support student teachers in moving from anthropocentric interpretations toward more nuanced posthumanistic orientations.

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