



Research Insights: Full Report

Engaging with Nature

The evidence from Froebel Trust
funded research projects
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Executive Summary

This report is focused on the Froebelian principle of engaging with nature. It is the outcome of a quasi-systematic review and synthesis of 28 outputs from research and practice development projects funded by the Froebel Trust, with an international scope.

Key Insights

1. Learning from children

Froebelian research shows how young children can draw adults into experiencing nature through their play. This highlights the potential reciprocity of interactions between children, adults and natural environments.

2. Challenging inequalities

Experiences of nature are socially and culturally specific, and often unequal within and between countries. Early childhood settings have a particular role to play in ensuring that all children have regular opportunities not just to be outdoors but to engage with nature.

3. Managing risk

Concerns about risk can limit opportunities for nature engagement, particularly for the youngest children. Froebelian research highlights the critical importance of knowledgeable, nurturing

educators and leaders in enabling rich, nature-based experiences.

4. Supporting wellbeing

The wellbeing of children, educators and the environment can be enhanced by Froebelian-informed practice that is slow, intentional, and multisensory. This is encapsulated in the Froebelian-inspired Nature Engaging and Nature Enhancing (NENE) pedagogy.

5. Developing relationships

Relationships with both people and places can be strengthened through a Froebelian approach to nature engagement.

6. Children under two

Froebelian research makes a particular knowledge contribution to sector understanding about nature-based pedagogy for babies and toddlers.

Implications

The report concludes with implications for practice, policy and research. It highlights the need to build on some of the innovative methodologies developed by Froebel Trust funded research that capture the first-hand experiences of children in natural environments. It recognises the need for educators to be knowledgeable about, and nurturing towards nature to support both child and environmental wellbeing. Finally, it positions early childhood settings as hubs for community connection and sustainability.

Introduction

Froebelian Principles

A Froebelian approach to childhood and early childhood education is encapsulated in the Froebelian principles. These principles are intrinsic to the flourishing of babies, toddlers and young children.

The principles are:

- Unity and Connectedness;
- Creativity and the Power of Symbols;
- The Central Importance of Play;
- **Engaging with Nature;**
- Knowledgeable Nurturing Educators;
- Autonomous Learners;
- The Value of Childhood in its Own Right;
- Relationships Matter.

Whilst the eight principles are interdependent, this report particularly focuses on 'engaging with nature', which is summarised below.

Experience and understanding of nature and our place in it is an essential aspect of Froebelian practice. Through real life experiences, children learn about the interrelationship of all living things. This helps them to think about the bigger questions of the environment, sustainability and climate change.

(Froebel Trust, n.d.)

The Froebelian contribution to knowledge about engaging with nature

The research presented throughout this report looks at the experiences of children from birth onwards. As set out in the Executive Summary (above) and considered in more detail (below), it evidences an underpinning emphasis on connectedness and reciprocity – between young children, adults and the natural world. Young children and adults exist alongside one another in a dynamic, connected relationship with nature, in which learning is reciprocal: children may learn from adults, but equally children will also 'teach' adults. A Froebelian approach to nature engagement supports opportunities for all children to engage with nature, and recognises

the profound impact of such engagement on the health and wellbeing of children, adults and the environment.

A distinctive contribution arising from this report is evidence which can inform our understanding of nature engagement for the youngest children. The outdoor experiences of babies and toddlers, and those working with them, have hitherto received less attention in research than older children. The Froebel Trust has funded a body of research which seeks to address this imbalance. In so doing, it makes a significant contribution to practice, as well as highlighting possibilities for both further research and for policy.

This report and the **accompanying set of cards** aim to provide new knowledge and evidence to inspire educators, researchers and policymakers.

Why nature engagement matters

There is now a significant body of robust research evidence that demonstrates the diverse health, learning and development benefits of nature engagement. As Arola *et al.* (2023, p.1) recently argued,

“[T]he ever-growing evidence of the multiple benefits of nature on children’s wellbeing is so clear that it has led paediatricians to recommend nature contact for improving children’s health.”

However, a report for Natural England (2025) found that a quarter of the population lives more than a 15-minute walk away from green spaces and this is particularly the case for ethnic minority groups and low-income communities. Its new strategy aims to *“build nature into everyday life so people can support, access and benefit from it wherever they live”* (Natural England, 2026, p.4).

For babies, toddlers and young children, much of their everyday life is spent in early childhood education and care settings. This raises questions about how nature can be built into the environments, pedagogy and practices of all settings to support this aim.

Nature engagement is not just about access to natural environments. Recent research highlights the significance of the psychological construct of nature connection - an inner awareness that can mediate our ‘outer’ experiences in and with nature (Richardson *et al.*, 2019). Whilst the focus has hitherto been more on adults and children aged over seven, research that now includes younger children is also supportive of this idea, that nature connection is not always associated with high nature contact, nor is it differentiated by the variables of ethnicity/disability (Watts, 2021). It points to the significance of a Froebelian approach that prioritises relational processes, qualities such as attentiveness and ways of ‘being’ outdoors (Kemp, Josephidou & Watts, 2022).

The review process

This report is based on a quasi-systematic review¹ that was undertaken independently by a research assistant (the report author) between December 2025 and March 2026. Its aim was to understand what Froebel Trust funded research and practice development projects tell us about the characteristics, relevance or benefits of a Froebelian approach to nature engagement.

28 relevant outputs were identified for review. All were less than ten years old, and included journal articles, reports, book chapters, a PhD thesis, and presentations. Each output was rated for quality based on three evaluative criteria: clarity of study aims, soundness of methodology, and strength of analytic approach. This process identified 25 outputs that were considered to be of sufficient quality for more detailed review. Key information on geographical

focus, participant characteristics, main findings, and implications was also extracted. Where a single research project generated multiple outputs, these were reviewed separately but compared for consistency, particularly if they raised distinct arguments.

Geographically, the majority of outputs originate from countries in the Global North, including the United Kingdom, the United States of America, Hong Kong, Aotearoa New Zealand and Australia. However other regions are represented, with an output from Jamaica also included.

A review template is available in Appendix 1. The reader is further directed to Appendix 2 for a table summarising the research projects and outputs reviewed.

¹ based on [Gill, 2011](#))



Insights about a Froebelian approach to nature engagement

1. Learning from children

Froebelian research shows how young children can draw adults into experiencing nature through their play.

Through a Froebelian lens, deep-rooted and shared connections between humans and the more-than-human² world are considered to exist. This connectivity becomes particularly evident when observing babies, toddlers and young children in natural environments. Froebelian research shows how children can draw adults into experiencing nature through their play. This challenges and turns on its head the dominant perspective that it is overwhelmingly adults that facilitate nature engagement, and highlights the reciprocity of interactions between children, adults and natural environments.

In terms of experiencing nature, Watts (2021b) explores the differences between an adult's considered, 'thinking' approach, and a child's more instinctive and embodied engagement. In this PhD project, young children attending one suburban setting in South East England were given wearable cameras during family day trips to natural environments. Parents were then invited to view extracts of the resulting video recordings and to discuss these with the researcher. One parent commented,

"I can't think of the last time that I ran and ran and ran...like...you know...you don't do that as an adult." (Watts, 2021b, p.115)

Watts found that when outdoors in natural environments parents feel they have to balance their responsibilities with their child's freedom. As one reflected, *"I don't want to cramp his imagination and exploration, but at the same time, he's my child - I don't want him to die."* (p. 123). To balance competing priorities, parents benefit from being actively engaged in their child's outdoor experiences; this could also benefit their wellbeing and promote feelings of happiness.

Young children's first-hand discoveries, questions and connections were found to *"cut through"* adult perspectives and offer... *"the potential for adults to have their perceptions refreshed"* (Watts, 2021b, p.156). This finding seems to highlight the potential difference between

adult and child perspectives of the natural world, the one framed by social enculturation over time and the other based on first-hand experience. By observing their child's outdoor experiences, parents can find themselves reconnecting with nature in a wondrous *"childlike"* (Watts, 2021b, p. 241) manner. As one parent, who reflected on an outdoor episode with her child, said, *"You just get all kiddy out there"* (p. 119).

² The term 'more than human' was coined by David Abram (Spell of the Sensuous, 1996) to describe qualities or attributes found in nature which include but exceed those of human beings: for example, sentience, emotion, intelligence, purpose and agency. It makes us question claims that such attributes apply to humans alone.

Research Insights | Learning from children

In later work, Watts (2022) explores the notion that adults can 'teach' children and children can 'teach' adults, thereby developing a reciprocal, experience-based learning system mediated by nature. This closely relates to *"Froebel's description of pedagogical relations between adults and child"* (Watts, 2022, p. 96).

Watts' (2022) data offer examples of parents spontaneously building on their child's engrossment in nature. One parent commented, *"Maybe you might normally say 'oh, there's the ducks' and go do something else - but actually noticing the different ducks' behaviour, and can you see them underwater and how they feed...?"* (p. 95). Following their child's lead here has 'taught' this parent to look beyond the superficial. As such, notions of adults acting as gatekeepers of nature for children are problematised. Watts (2022, p.97) proposes, *"Adult nature connection is currently understood as influential on children, but perhaps within current conditions there can be an appreciation of the equal significance in children's influence."*

While Watts' research focuses on the parent, other projects explore

the role of the knowledgeable and nurturing educator in relation to nature engagement. Jackson-Barrett & Lee-Hammond's (2018) 'On Country Learning' project in Australia, for example, suggests the need to reconsider the position of 'adult' and 'child', 'knowing' and 'unknowing', and 'powerful' and 'powerless', reflecting the relational approach pioneered by Froebel but from an educator perspective. In this project, an Aboriginal Education Officer commented that the children were,

"excited to share [...] with other people...they became teachers for each other and to their parents."

(Jackson-Barrett & Lee-Hammond, 2018, p.97)

This research, and other Froebelian research, positions young children as already having an understanding of, and connection with, nature (Josephidou & Kemp, 2024; Watts, 2022, 2021b). Adults can assist in cultivating this by being nurturing educators. One project explored the potential of online learning spaces for educators working in remote parts

of the Rocky Mountains (Colorado, USA) to engage in professional dialogue and reflection about a Froebelian nature engaging pedagogy (Oh, 2025). These educators describe children as being *"always curious about their surroundings and natural world"* (p. 7) and thriving in opportunities that indulge this *"innate curiosity in nature"* (p. 7). At the same time, they recognise the tendency for adults to control outdoor practice and overlook children's individuality and their connections to the natural world.

This profession-based view highlights the importance of providing ongoing support and guidance for educators. Bertram *et al.*'s (2024) guidance paper 'Deep Level Engagement with Nature' is based on the findings from a research and practice development project involving settings in England and New Zealand. Nature engagement is understood here as an embodied, lived experience that develops within relationships and interactions. The guidance considers how space, time and seasons

can shape nature engagement experiences and offers practical examples of how educators take their lead from children's curiosity and extend this. In the following narrative, the educator gently supports a first-hand sensory experience with a question, *"One child lies on the grass as the rain falls on her face. The educator asks how it feels. She says 'it's cold and it's going on my eyes and nose.'" It demonstrates the importance of thoughtfully used intentional pedagogic interactions in developing a Froebelian approach to nature engagement.*



2. Challenging inequalities

Nature engagement is socially and culturally specific, and often unequal. Early childhood settings have a particular role to play in ensuring that all children experience relevant nature engagement.

Variations in when and how babies, toddlers and young children spend time outdoors at a setting can be seen as somewhat representative of wider socio-cultural attitudes. As these attitudes are often conveyed by adults, it is important to develop a holistic view of educators that recognises the ways their personal and professional experiences outdoors may influence the support and guidance that they offer children.

In Benson McMullen & Powell (2025), academics from a range of international contexts explored nature engagement's connection to wider societal norms, expectations, and cultural practices. Whilst *"all members of [the] international team embrace nature and see children's participation in and with the natural world to be important"* (p. 141), reflecting a shared commitment to the Froebelian principle of nature engagement,

significant variations emerged in policy and practice between the countries. A connection to the natural world was expressed as particularly significant by a participant from Aotearoa New Zealand, who referred to the

"cultural philosophy which sees us as being interconnected with nature and having this deep spiritual relationship with the land, the sky, and the seas."

(Benson McMullen & Powell, 2025, p.131)

In contrast, whilst national policy in Hong Kong mandates engaging children in nature, the study found that,

"one-year-olds in child care centres in Hong Kong have less direct engagement with nature than is typical in the other three countries."

(Benson McMullen & Powell, 2025, p.132)

This may represent wider-held views towards nature-engagement in Hong Kong and/or a reflection of the limited access to natural spaces because of urbanisation.

Other projects highlight the importance of educators having direct nature engaging experiences, and space to reflect on these so they can make connections between themselves, their history, their experience, and their practice. Moore & Towler (2024) report on the experiences of early childhood university students in Ireland, finding that students' understanding of outdoor learning spaces *"is fostered through first hand experiences in such spaces and from reflection on those experiences"* (p. 9). They reported the *"personal and professional growth"* (p. 29) that occurred among these student educators, concluding that being outdoors is not the same as engaging with nature - the latter being something that takes time and space to develop. Similarly, educators from Aotearoa New Zealand and England in Pascal & Denham's (2026) practice-based narrative research reflected on the need for

"time and space to look back on our own experiences, to consider why certain values mattered so much to us."

(Pascal & Denham, 2026, p.40)

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The Aotearoa New Zealand educators in Pascal and Denham (2026) reflected on these factors in relation to *“the concepts of te ao Māori”* (the connection between humans and the more-than-human world), further linking individuals’ beliefs and practices and socio-cultural context.

Opportunities for the role of early childhood settings to go beyond care and education and address inequalities in nature engagement are explored in several projects. This is of vital importance, as a review of international research found that, *“the outdoors is... a socially stratified space in which socio-economic status, class, ethnicity, and (dis)ability intersect in ways that can either include or marginalise even from before birth”* (Kemp, Josephidou & Bolshaw., 2025, p. 232). Early childhood settings often provide *“a curriculum oriented to young children’s active learning and [offer] outdoor provision as an integral aspect of daily practice”* (Watts, 2021a, p. 44). As such, they can act as disrupters to, and rectifiers of, the inequitable access to nature experienced by some young children and their families.

Educators in Merrick *et al.*’s study (2022) of early childhood settings in predominantly urban areas of England appeared acutely aware of their responsibility to provide nature-based engagement at their settings. The researchers noted that, *“educators of city-based children clearly felt that part of their role was to fill a perceived gap in the children’s outdoor experience”* (p. 32). As one educator commented,

“A lot of families don’t have gardens and it is important to let those children access nature”

(Merrick *et al.*, 2022, p.18)

At the same time, educators also showed an awareness of the need to balance what they might consider to be ‘best practice’ with the perspectives and cultural expectations of the children’s parents and families.

For example, one educator stated,

“Culturally some parents don’t want their children out in certain weather getting dirty, wet, cold or even too hot.”

(Merrick *et al.*, 2022, p.31)



3. Managing risk

Concerns about risk can limit opportunities for nature engagement, particularly for the youngest children. Froebelian research highlights the critical importance of knowledgeable, nurturing educators and leaders in providing rich, nature-based experiences.

Applying a Froebelian approach to engaging with nature can remind educators, policy makers, and parents/families to refocus on children's intrinsic curiosity and interests. Emphasising a child's view of the natural world, and its potential to offer boundless learning experiences, can lessen concerns about the outdoors as being laden with risk (Josephidou & Kemp, 2024; Kemp *et al.*, 2024; Moore & Towler, 2024).

Concerns are frequently expressed that babies, toddlers and young children can come to harm during nature-based engagement. The emphasis on a linkage between the outdoors and human physical activity (Oh, 2025; Kemp & Josephidou, 2023a; Watts, 2022) may play into a view that the outdoors is less safe, particularly for very young children. At the

same time, Josephidou & Kemp (2024) identified a strong narrative positioning nature itself as risky in their study of English baby rooms. They argue that a Froebelian-informed understanding of the natural world can act to challenge these widely held views that may limit practice. This is particularly important given the inverse worry that a lack of nature engagement is harming young children. Within a contemporary context, characterised by urbanisation (Watts, 2022; Merrick *et al.*, 2022), technological advances and neoliberal pressures (Clark, 2023), spending time in natural environments is associated with a range of health, learning and development benefits (see Bertram *et al.*, 2024).

An adult-centric preoccupation with risk leads educators to adopt a particular stance during their time in nature with children. As Kemp, Josephidou & Bolshaw (2023, p.229) argue, *"adults can play a critical role in limiting the experiences of babies and toddlers outdoors both directly through their behaviours (removing access) and indirectly (transmitting values and beliefs)"*.

Reporting on the reflections of six teachers in the USA, Oh (2025, p.8) documents: *"teachers reported that they serve various roles simultaneously including facilitator, safety supervisor, supporter, and observer, and many of them pointed out a safety supervisor as their prioritized role."* Feeling the need to take on such a position may reduce the chances of adults and children having slow, intentional, and all-encompassing nature-based engagement experiences together.



Research Insights | Managing risk

Another consequence of the concerns surrounding risk is that outdoor spaces tend to reflect adult concerns for safety and supervision rather than what young children themselves may want and need. This was the conclusion of a small-scale mixed method study in England, which highlighted the different perspectives of children (average age of three), parents and educators (Merrick *et al.*, 2022).

In settings natural materials are often replaced with manufactured ones (see Moore & Towler, 2024). Kemp *et al.* (2024, p.7) describe outdoor spaces provided for babies and toddlers as often “artificial, flat and bounded. “Such an approach can serve to perpetuate limitations on babies’, toddlers’ and young children’s enriching nature-based engagement.

Kemp & Josephidou’s (2023a) research highlights the crucial role of leaders and managers, who can act as “critical pedagogues” (p.651) helping to defend and promote change through collaboration with colleagues and by making decisions related to practice and pedagogy, including those related to safety. They cite one manager discussing how sanitising outdoor spaces to placate adult concerns can be resisted, without causing harm to children. Referring to stinging nettles, the manager explained a sting “*doesn’t cause any long-term injury, and once [the children have] done it once, they won’t go back’. You know, you can’t remove everything*” (p. 649). This shows the potential for early childhood settings to counteract dominant perceptions of risk amongst educators and parents/families that limit opportunities for nature engagement, particularly in the case of the very youngest children.



4. Supporting wellbeing

The wellbeing of children, educators and the environment can be enhanced by Froebelian-informed practice that is slow, intentional, and multisensory. This is encapsulated in the Froebelian inspired Nature Engaging and Nature Enhancing (NENE) pedagogy.

Froebel's seminal idea of the Law of Opposites positions the human and more-than-human world as being in a reciprocal relationship (Watts, 2021b). However, the hurried pace of setting life can mean these connections are overlooked.

Slow pedagogy (Clark, 2023, p.49) encourages a reflection on how time is perceived and used and moves the focus from 'doing' to *"being with' - [being] attentive to the rhythm of the children, and adults and materials"* (p. 49). Bertram et al. (2024, p.16) equate such 'slow' practices with *"transformative experiences"* that can support child, educator and environmental wellbeing.

Pedagogical shifts can enhance young children's wellbeing and contribute to the wellbeing of the environment. Pascal & Denham document from the context of Aotearoa New Zealand that,

"when children connect with nature using Froebel's principles, they were able to develop a strong sense of kaitiakitanga (guardianship)."

(Pascal & Denham, 2026, p.18)

The emphasis here is on children taking active, empowered responsibility for the more-than-human world's health, longevity, and sustainability. Addison likens this to feelings of *"stewardship"* (2025, p. 95). Jackson-Barrett & Lee-Hammond (2018) document what they describe as a *"culturally centred outdoor learning project"* (p.8). This project focused on understanding *"Aboriginal connectedness to the spiritual, social, cultural, environmental and geographic dimensions of particular outdoor spaces"* (p. 86).

Working alongside community Elders and school based educators and applying what they saw as *"the inverse of the current curriculum arrangements"* (p.92) they adopted the Froebelian ethos of starting with the child and their culture and country. They document the creation of learning environments *"that enable each child's strengths and all aspects of their being (culture, language, spirituality, kinship) to be made visible"* (p. 92). The development of a culturally-informed pedagogy demonstrated respect and appreciation and enabled participating children *"to have their identities valued and celebrated in their education"* (p. 96).



Research Insights | Supporting wellbeing

Menter & Tiplady (2022) illustrate how a Froebelian inspired pedagogy, encapsulated in weekly forest school sessions, can support the personal, social, and emotional development of children and young people. The project was developed as a response to *“a growing local need for services to support children and young people with mental health and wellbeing needs”* (p. 1). They found that, by attending regular forest school sessions, children saw their social and emotional health ameliorated. One commented, *“I’ve been able to help out and had so much fun”* (p. 7).

Prioritising multi-sensory, time-rich engagement with both the human and more-than-human world can enhance wellbeing, as well as acting as a gentle resistance to a fast-paced, hurried world, with its consequent pressures. The affordance of time supports children’s opportunities for nourishing, multi-sensory experiences. Such experiences can evoke both invigorating feelings of *“awe and wonder”* (Addison, 2025, p. 100) and also feelings of being *“calm[ed] and sooth[ed]”* (Kemp *et al.*, 2024, p. 11). Addison (2025, pp. 90–91), exploring Froebel’s principles in Scottish early childhood practice,

describes the importance for three-year-old Aulay of the multi-sensory experiences of seeing *“the gentle morning light”*, smelling a *“woodland fire”*, tasting the *“freshly cut herbs from the herb garden”*, hearing *“a spark catch[ing] a cotton ball tinder”*, touching the ground while *“barefoot”*, sensing hunger, the warmth of the fire, the thrill of running *“at full speed”* and sitting assuredly on *“a seat outdoors”*.

Such experiences become available to young children when they are not being *“hurried”* (Clark, 2023, p. 36). Slow pedagogy invites educators to reassess time allocation through an attunement to, and prioritisation of, natural rhythms (Kemp *et al.*, 2024) rather than following a strict timetable. Green (2022) offers an example of practice development from a setting in Scotland that aspires to *“trust the agency of the child to unravel their aspirations and needs in their own way and in their own time”* (p. 5). As a result of this pedagogical shift, the children attending this nursery are now involved in deciding where to go on trips, *“whether to be indoors or outdoors at all times”* (p. 40) and where to have a meal, while the adults avoid *“attempt[ing] to*

rush a learning experience” (p. 5). As well as supporting autonomous learners, the provision of open-ended play opportunities outdoors can help children develop and hone important skills (Hawkins, 2023).

The Froebelian-inspired Nature Engaging and Nature Enhancing (NENE) pedagogy offers a way of thinking about early childhood that emphasizes practices that support both human and planetary health (Josephidou & Kemp, 2024). The terms ‘engaging’ and ‘enhancing’ emphasise these two mutually inter-connected dimensions of wellbeing. It calls for both adults and children to engage with what the natural world offers and be attentive to what can be given back. NENE is *“based on the Froebelian principle of unity, so its focus is on strengthening connectivity, rather than “forming ‘connections’, building a ‘path’ or determining a ‘route’ from the individual”* (Kemp, Josephidou & Watts, 2022, p. 20). It offers a distinctive early childhood response to the global environmental crisis by providing pedagogical guidance to support children’s developing relations in and with the world.

NENE pedagogy integrates human and environmental concerns through early childhood practice.

- **Engaging** to benefit human wellbeing,
- **Enhancing** to benefit environmental/planetary wellbeing.

(Kemp, Josephidou & Watts, 2022)

5. Developing relationships

Relationships with both people and places can be strengthened through a Froebelian approach to nature engagement. Froebelian research offers examples of how nature-based engagement can literally and metaphorically ‘feed’ sustainable social transformation.

Early childhood settings can support local communities through the provision of resources (Burke, 2023), and also through the sharing of skills and information. At the same time local communities and influential figures within them can support and guide the development of nature-engaging practices (Jackson-Barrett and Lee-Hammond, 2018). Pascal and Denham (2026, p. 5) emphasise the importance of linking to *“local histories of the land and people.”* This is in line with a

“Froebelian notion ... [where] education is a dynamic, ever-evolving relationship among children, adults, and the broader environment”

(Addison, 2025, p. 97)

It is possible for individual schools and early childhood settings to make a significant contribution to their local communities through nature engaging practices that are closely tied to Froebelian principles. In Jamaica, Burke’s project (2023) applies the Froebelian concept of the children’s garden to the local cultural context and evidences the inter-relationship between human and environmental sustainability. The primary school was situated in an area of high poverty and unemployment and the development of a kitchen garden and rainwater harvesting system aimed to improve the local food and water supply. Involvement from community members and organisations strengthened community relationships and also acted as an introduction to sustainability for the children. Both the community and the children attending the school benefitted in multiple ways from this initiative, demonstrating the valuable reciprocity of community relationships.

The garden enabled the school to offer healthy meals to more than a thousand children and to supplement diets in the home. Involvement in the development and management of the kitchen garden supported children’s learning across the curriculum. It provided nature-based, multisensory play experiences in what Burke describes as the *“concrete laden community”*. It boosted the children’s interpersonal skills, sparked their interest in sustainable practices, and was found to have benefitted their *“overall health”* (p. 11).



Research Insights | Developing relationships

The idea of building community links was similarly an intention of the work of a kindergarten in Auckland. Here the setting garden was developed with the following aim: - that they would,

“to have enough produce to share with kindergarten families as well as contributing to a nearby pātaka kai (storehouse or pantry) ... [supporting] the wider community to connect through food.”

(Pascal & Denham, 2026, p. 19)

Both of these instances provide support for the idea that, through their nature engagement activities, settings can become sites of social and environmental transformation within their communities (Josephidou and Kemp, 2023a; Watts, 2021a).

Hands-on, Froebelian-inspired training gave educators at one school in Scotland the confidence and skills to become a nature engagement hub, sharing expertise with families and other educators. Russell (2023) documents how educators undertook training to improve their current practice with the aim of enhancing their outdoor-based approach. By the end of the project the newly trained staff were running “camp fire experiences with children and families” (p. 25), and had developed a community of practice with their cluster partners and schools within the local authority. Russell details the ways in which the project both drew upon a number of Froebelian principles (including Unity and Connectedness, Knowledgeable, Nurturing Educators, and Engaging with Nature), and supported participants’ practice through their developing understanding of them.

Teachers reported feeling more confident and capable of providing successful nature-based sessions, and children flourished saying that they enjoyed,

“playing with ... friends ... Just being outside ... looking after the plants ... [and] growing things.”

(Russell, 2023, p.22)



6. Children under two

Froebelian research makes a particular knowledge contribution to understandings about nature-based pedagogy with children under two.

This final category differs from the first five, in focusing on nature engagement with children under two. This is a group of children for whom there is a lack of representation in research and policy, and fewer opportunities to experience nature engagement in practice. Led by a single research team, two multi-part projects have provided valuable new evidence about provision for babies and toddlers in early childhood education settings (see Appendix Table 3). The first - **A life 'in and with nature'? An exploration of outdoor provision in babyrooms** - was undertaken to learn about attitudes towards, and ongoing practice relating to, nature engagement in English babyrooms and is referenced throughout this report. The second - **A Froebelian inspired nature pedagogy in urban babyrooms** - explored the potential of a Froebelian-inspired

nature-based pedagogy for babies and toddlers in urban contexts. The findings from the second project reports are summarised below.

Early childhood settings have a potentially critical role in developing more inclusive practices and challenging the dominant idea that babies do not belong outdoors. A systematic review of international research (Kemp, Josephidou & Bolshaw, 2023; 2025) found that three types of outdoor spaces are important in the lives of the youngest children - those in the home, community and within early childhood settings. Research emphasises the importance of specific environmental characteristics for babies' holistic development (greenness, the presence of natural features, enclosure) within these outdoor spaces but also identifies significant inequalities of access to such high quality natural environments.

Since babies' access to, and interactions within, outdoor spaces are dependent upon adults both

directly and indirectly, **who** these adults are (social characteristics) and **how** they are (cultural values and practices), are critical factors that mediate their experiences.

Most research focuses on the Global North where dominant cultural narratives of safety and of physical activity limit outdoor experiences for babies. In these contexts, nature engagement opportunities within settings can help address underlying inequalities.

Parents recognise this critical role that settings play in providing regular access to natural environments for their babies and toddlers. A survey of baby room parents in England and Scotland (Kemp *et al.*, 2025a) found that almost a third of parents of babies do not have access to a private garden. Most parents go outdoors with their baby or toddler at least several times a week, spending one to five hours on average each week, but would like to be able to spend more time. Parents note changes in

the behaviour and demeanour of their child when outdoors. Many babies and toddlers appear to be happier, calmer and more observant outdoors and enjoy touching, looking and listening to nature. Babies and toddlers often indicate their desire to be outdoors to their parents. Spending time in nature is more important to parents of toddlers than babies. When outdoors, parents feel the priority for toddlers is being active whilst for babies it is being healthy and experiencing sensory engagement. Being sociable is less significant, in part because parents feel that the nursery offers this.



Research Insights | Children under two

Even in challenging urban contexts, a Froebelian understanding of nature engagement can inspire and transform outdoor pedagogies (Kemp *et al.*, 2025b; 2025c). Based on an evaluation of the changes within five baby rooms the researchers found that educators' interest in developing their outdoors for babies was ignited by the project, particularly through the opportunity to engage with an environmental advisor.

Here, the advisor noted the surprising nature-richness of the outdoor spaces and the opportunities to raise awareness of this existing potential:

"I really need to start with 'what is nature?' It's not just gardening. So quite a few settings like you will have seen have got a gardening area, but on top of that they they've got like honeysuckle coming down from a neighbouring property or they've got like a big buddleia tree which is amazing...So it was just even opening their eyes to it. That's brilliant. You've already got wildlife actual nature coming into your garden...it's opening their eyes up to the fact that's amazing. Then you've got a resource there that you don't even need to do anything."

(Kemp *et al.*, 2025c, p. 9)

This project demonstrates the value of creating spaces for collaboration between early childhood and environmental specialists. Incremental, manageable changes can result in a considerable improvement in babies' access and enjoyment of nature-based experiences as this manager noted,

"It made us think, oh, wow, yeah, how nice and how lovely it can look. And sort of the babies, they've noticed. I mean, they notice everything. [...] it's been a real game changer for them in terms of them noticing the flowers."

(Kemp *et al.*, 2025c, p.11)

Both 'visible' changes (such as updating resources) and 'invisible' changes (including re-thinking how time is spent) combine to make meaningful changes in day-to-day practice. The changes adopted in the baby rooms involved in these projects encapsulate the 'butterfly effect' that Froebelian-inspired practice can potentially have in early childhood and beyond.

BabyNENE is a pedagogic approach developed collaboratively with educators and advisors during the project. It is based on four qualities that can be considered in relation to both babies and the outdoor environments in which they spend time. It encourages educators to:

- **be attentive** to what babies are interested in, follow their lead and tune into natural processes and cycles (such as weather, light and the seasons) and to become familiar with what their outdoor environment offers;
- **be responsive** to babies' needs outdoors, facilitating feeling, thinking, sleeping and sensory engagement whilst responding to the specific needs of the outdoor environment including adding natural elements;
- **nurture** babies' interests outdoors, observing and valuing the connections they make, helping them to understand how everything links whilst modelling caring behaviours towards the environment;
- **question** and challenge barriers that limit opportunities for babies to spend time outdoors in nature-rich environments.

Find out more:
babiesoutdoors.co.uk

Implications

For practice

- **Engaging** with research can help educators articulate **why** a Froebelian approach to nature engagement matters.
- **Discovering** the wellbeing benefits of nature engagement (for adults, children, and the environment) through first-hand experience can be transformational.
- **Questioning** who gets to spend time outdoors at the setting (and who does not) can help identify nature engagement 'blindspots' e.g. babies.
- **Understanding** each child's unique socio-cultural context creates a strong foundation for developing relevant and inclusive nature engaging pedagogies.
- **Slowing down** creates more opportunities for adults and children to learn together, from each other, and from the natural world.
- **Sharing** nature-based knowledge and experiences can support settings in becoming hubs for their communities.

For policy makers, leaders and advisors

- Growing concerns about planetary health and the effects of climate change mean that early childhood settings now have a responsibility to develop sustainable practices. The Froebel Trust has developed guidance to support settings to think about what these sustainability concerns might mean for their practice.
- Settings want to know how they can enhance the naturalness of their outdoor spaces to support nature engagement. Resources from Froebel Trust funded projects such as the **babyNENE** toolkit offer practical guidance.
- There are opportunities to develop closer relationships between early childhood settings and specialist environmental organisations such as the Wildlife Trusts, based on their shared commitment to nature engagement.



Implications

For research

- The Froebel Trust has funded research that has pioneered innovative methodologies that capture young children's first-hand experiences in natural environments. Further research that employs child-led or child-centred data collection would be valuable in building on this foundation.
- Educator-based research is valuable and empowering. It is therefore important to ensure that opportunities for educators to be active in a researching capacity remain accessible (such as via The Froebel Trust). Feelings of empowerment developed in practice-based research enable educators to develop their practice and confidently and assuredly convey this to relevant stakeholders.
- There is a need to understand more about the nature-based perspectives and experiences of young children and their families from diverse social and cultural contexts within the UK.
- Further exploration of possible existing research on a Froebelian approach to nature engagement reported in languages other than English (the scope of this Insight) is needed.



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Appendix 1

Output Evaluation Template

Overarching Evaluation Question: What, if any, new knowledge or insights has the project or output generated about Froebelian Education	
Descriptive Data (all outputs)	
Title of Output	
Type of Output	
Available Metrics (citations, downloads)	
Author(s) + affiliation	
Links with other outputs	(from same and different projects)
Year of publication	
Geographical Focus	
Participant characteristics	(e.g. educator/parents/children; age, socio-economic background, ethnic background)
Type/s of context/environment	(e.g. ECE setting, home, community, other)
Evaluative Criteria (all outputs)	
1. Does the project/output have clear aims and the potential to address these? (i.e. are they re-alistic in number, size, scale?)	Yes/No If yes, what are the study aims
Please rate study aims	Good, Fair, Unclear, Poor
2. Is there a clear justified methodology?	Yes/No If yes, what methodology does the study use?
Please rate soundness of methodology	Good, Fair, Unclear, Poor
3. Are knowledge claims underpinned by robust evidence (i.e. is there a clear analytic process? Is sufficient data included?)	Yes/No If yes, what analytic approach is used?
Please rate the robustness of evidence	Good, Fair, Unclear, Poor

Overall output rating	
• Good - positive assessment against all three questions. • Fair - positive assessment against most of the questions; no negative assessments. • Unclear - unclear quality in accordance with all the questions. • Poor - negative assessment against one or more of the questions.	
Knowledge Contribution (only for outputs rated good or fair)	
Key Findings Please cut and paste key information from findings/results/discussion / conclusion that could be relevant.	
Implications for policy	
Implications for practice	
Implications for research (methodological innovations)	
Caveats and other comments	

Appendix 2

Included Outputs

Author(s) and date	Project	Output type	Location	Method notes	Author(s) and date	Project	Output type	Location	Method notes
Addison (2025)	Bringing children's voices to the fore of education for sustainability in the early years	Book chapter	Scotland	One child, case study.	Jackson-Barrett and Lee-Hammond (2018)	On Country Learning: Promoting Remote Australian Aboriginal Children's Well-being and Creativity	Journal article	Australia	Quantitative and qualitative data collected within an "Indigenous epistemological and ontological framework". Children, educators, community members.
Benson McMullen and Powell (2025)	A community of minds: pedagogies of care for infants and toddlers in group-based ECEC settings in four cultures	Book chapter	USA, England, Hong Kong and Aotearoa New Zealand	Analysis and interpretation of data collected in 4 countries from ECEC settings using LIVE-ME methodology. Included 'round-table' style discussion and series of interviews between academics, centring on the Froebelian principle of 'Engaging with Nature'.	Kemp & Josephidou (2020)	A life 'in and with nature?' An exploration of outdoor provision in baby rooms	Report	International	Based on narrative review of published research
Bertram, Pascal, Bennett, Bruce, Cave, Denham and Lyndon (2024)	The Froebel Partnership	Guidance paper	UK	Practitioner inquiry with children, parents, educators.	Kemp et al. (2020)		Report	England	Based on an online survey of Early childhood setting educators.
Burke (2023)	Kitchen (kinder) Garden: Improving Early childhood teaching and learning process and environment	Report	Jamaica	Interview data collected within a case study design. Children, educators, community members.	Josephidou et al. (2021)		Journal article	England	Based on an online survey of Early childhood setting educators.
Green (2022)	Implementing slow pedagogy through Froebelian principled practice	Presentation	Scotland	Practitioner inquiry with educators, children, families. Parent questionnaires, children's reflections, educator reflections, and observations of a child's day.	Kemp & Josephidou (2023)		Journal article	International	Narrative review of published research
					Kemp & Josephidou (2023a)		Journal article	England	Case study, 3 settings. Verbal and written data collected in multi-sited ethnography
Hawkins (2023)	Symbolic representation - how do we support the development of 'writing' through outdoor play?	Report	Scotland	Observation, photographic evidence and professional dialogue. Educators, children, families.	Josephidou & Kemp (2024)		Journal article	England	Narrative literature review; online survey of babyroom provision; setting case studies.
					Kemp, Josephidou & Watts (2022)	Developing an ECEC response to the global environmental crisis The potential of the Froebelian-inspired 'NENE Pedagogy'	Report	England	Positive Discourse Analysis 'The Education of Man'

Appendix 2

Included Outputs

Author(s) and date	Project	Output type	Location	Method notes	Author(s) and date	Project	Output type	Location	Method notes
Kemp, Josephidou & Bolshaw (2023)	A Froebelian inspired nature pedagogy in urban babyrooms	Report	International	15 different countries, majority from Global North.	Merrick, Bradford, Lewis, Paffard and Patterson (2022)	The Access to Nature Project	Report	UK	Mixed methods research project with children, parents, educators.
Kemp et al. (2024)		Report	England	Managers and babyroom educators at 5 early childhood settings. Interview and observational data collected alongside written field notes and audio recorded reflections.	Watts (2021a)		Report	UK	Literature review
Kemp et al (2025a)		Report	England	Online survey of all parents with a child aged under 24 months attending a Bright Horizons setting (n=233). Data analysed thematically.	Moore and Towler (2024)	Nurture through nature: fostering early childhood students' understanding of outdoor learning spaces	Journal article	Ireland	Students. Reflective maps, focus group and reflective Journals/ Zines.
Kemp et al (2025b)		Report	England	Managers and babyroom educators at 5 early childhood settings. Qualitative data gathered to evaluate Froebelian inspired nature-based intervention	Oh (2025)	Nature play, play naturally: Supporting Outdoor and Nature-Based Play in Preschool	Report	USA	Teachers. Interview data analysed thematically.
Kemp, Josephidou & Bolshaw (2025)		Journal article	International	Systematic literature review.	Pascal & Denham (2026)	Froebel Partnership	Book chapter	England and New Zealand	Practitioner Inquiry as part of a large research and practice development partnership
Kemp et al (2025c)		Final project report	England	Systematic literature review; online survey of babyroom parents; greening project with 5 ECE settings	Russell (2023)	Developing outdoor opportunities as part of a continuous provision in P1 and P2	Report	Scotland	Quantitative and qualitative data. Primary School educators' action research project. Educators, children.
Menter and Tiplady (2022)	BREEZE Forest School at Scotswood Natural Community Garden	Report	England	Triangulated qualitative data thematically analysed to understand impact of Breeze Project. Teachers, children, young people.	Watts (2021b)	"I'm learning nature now with them": what can a holistic perspective contribute to our understanding of the influential relations between young children, adults and a natural environment?	PhD thesis	England	Sensory ethnography": children's Go-Pro footage used as basis for reflection with parents.
					Watts (2022)		Journal article	England	As above

Appendix 3

Project	Associated Texts
A life 'in and with nature?' An exploration of outdoor provision in baby rooms	Kemp & Josephidou (2020) Where are the babies? Kemp et al. (2020) Making connections with their world. Outdoor provision for under-tuos in early childhood settings in Kent. Josephidou et al. (2021) Outdoor provision for babies and toddlers: exploring the practice/policy/research nexus in English ECEC settings Kemp & Josephidou (2023) Babies and toddlers outdoors: a narrative review of the literature on provision for under twos in ECEC settings Kemp & Josephidou (2023a) Creating spaces called hope: the critical leadership role of owner/managers in developing outdoor pedagogies for infants and toddlers Josephidou & Kemp (2024) Developing nature engaging/nature enhancing pedagogies for babies and toddlers
A Froebelian inspired nature pedagogy in urban babyrooms	Kemp, Josephidou & Bolshaw (2023) From weeds to tiny flowers. Kemp et al. (2024) Looking for the wow and the wonder. Kemp et al. (2025a) Making memories together. Kemp et al. (2025b) "The babies, they've noticed". An evaluation of a Froebelian inspired nature-based pedagogy in urban babyrooms. Kemp, Josephidou & Bolshaw (2025) Tiny humans' outdoors: understanding the factors that mediate opportunities for babies and toddlers Kemp et al (2025c) Developing Nature Engaging & Nature Enhancing (NENE) pedagogies for babies and toddlers in urban babyrooms.

***“The child should experience nature in all its aspects
-form, energy, substance, sound and colour”***

Friedrich Froebel in Lilley (1967) Friedrich Froebel : a selection from his writings. Cambridge: Cambridge University Press.

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