



Developing Nature Engaging & Nature Enhancing (NENE) pedagogies for babies and toddlers in urban babyrooms

Final Report



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Contents

Introduction	3
1. Understanding nature engagement from diverse cultural perspectives	4
a) Systematic literature review	4
b) Parental survey	5
c) A visual arts collaboration	6
2. Working collaboratively with ECEC settings in urban areas to 'naturalise' their outdoor area	7
a) Baseline setting data	7
b) A Froebelian inspired intervention	8
c) What changed	10
3. Creating an inclusive and democratic model of nature engaging and nature enhancing pedagogy for babies and toddlers	11
4. Conclusions	12
a) Successes	12
b) Limitations	13
c) Post-project plans to extend and develop impact	13

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Introduction

This Froebel Trust funded project has supported the development of a research practice partnership between CCCU, The Open University, Derbyshire Wildlife Trust, Bright Horizons and five of their settings with provision for up to twos in London.

Amongst the national network of Wildlife Trusts, Derbyshire Wildlife Trust (DWT) has developed particular expertise in supporting nature connection in very young children through its [Nature Tots programme](#).

The opportunity to collaborate with Bright Horizons, a private nursery provider with 274 settings across the UK, came from a presentation about the project we gave at British Early Childhood Education Research Association (BECERA) in February 2023. Founded by Jim Greenman (author of *Caring Spaces, Learning Spaces*) their Bright Beginnings curriculum recognises the importance of nature connection. Significantly Bright Horizons are part of the 'private group-based settings' that collectively provide more than half of all childcare places in England¹. Their reach, particularly in relation to birth to two provision, meant that this would be a potentially impactful collaboration.

Inspired by Froebelian philosophy, the partnership has focused on addressing the question - How can English Early Childhood Education & Care (ECEC) settings in urban contexts be supported to develop democratic and inclusive nature engaging & enhancing pedagogies for babies and toddlers?

The project had three aims.

Aim 1: To develop understandings of nature engagement from the diverse cultural perspectives of families with babies/toddlers attending ECEC settings.

Aim 2: To work collaboratively with the families and practitioners at five ECEC settings located in contexts of socio-economic deprivation and cultural diversity to 'naturalise' their outdoor areas

Aim 3: Create an inclusive and democratic model of nature engaging & enhancing pedagogy for babies and toddlers

This report provides an overview of its progress, achievements and next steps with respect to each of the aims.

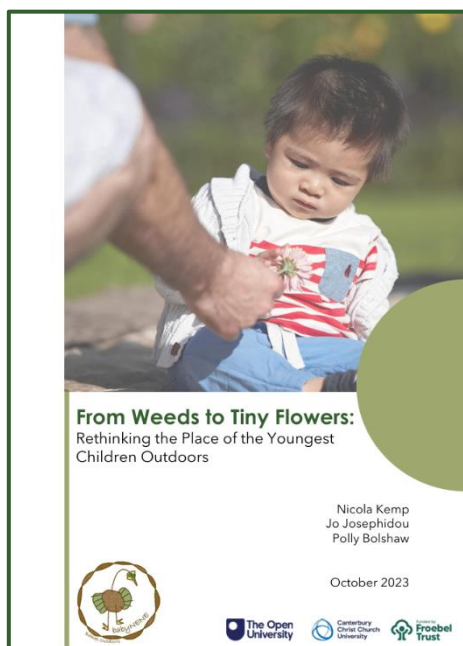
¹ Department for Education (2024) *Childcare and early years provider survey*. Available at: <https://explore-education-statistics.service.gov.uk/find-statistics/childcare-and-early-years-provider-survey/2024> (accessed: 28 October 2025).

1. Understanding nature engagement from diverse cultural perspectives

a) Systematic literature review

Our first step was to undertake a systematic review of international research literature (41 papers in total) to understand what is already known about nature engagement for the youngest children. Key findings were:

- Three types of outdoor spaces are important in the lives of the youngest children – those in the home, community and within ECEC settings. Research emphasises the importance of specific environmental characteristics for babies' holistic development (greenness, the presence of natural features, enclosure) within these outdoor spaces.
- Since baby's 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 pedagogies for babies.
- In these contexts, ECEC settings have a potentially critical role in developing more inclusive practices and challenging the dominant idea that babies don't belong outdoors.



The full analysis is available as a separate report: has been published as a report: [From Weeds to Tiny Flowers](#) (Kemp, Josephidou and Bolshaw, 2023).

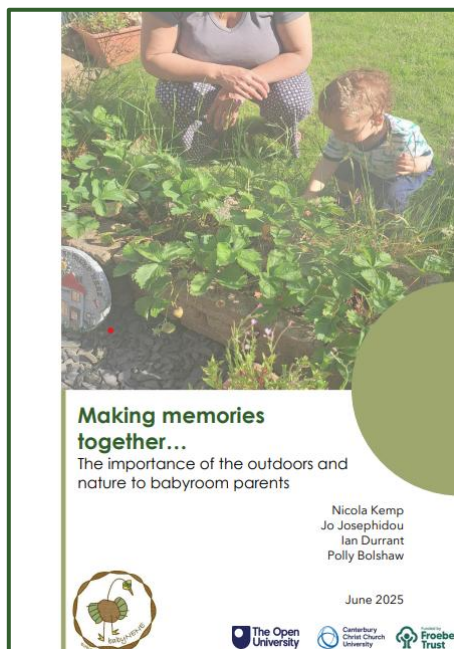
An open access research paper has also been published in *Children's Geographies*:

[Kemp, N., Josephidou, J. and Bolshaw, P. \(2025\) 'Tiny humans' outdoors: understanding the factors that mediate opportunities for babies and toddlers', *Children's Geographies*, 23\(2\), pp.219-246.](#)

b) Parental survey

Our original intention was to explore diverse cultural perspectives about spending time outdoors and engaging with nature from birth using a photovoice methodology. However, despite several attempts few parents chose to engage. We therefore adapted our approach and designed an online survey. This was sent out to all parents with a child aged under 24 months attending a Bright Horizons setting in the UK. A total of 233 valid responses were recorded. Whilst respondents came from across England and Scotland, the majority lived in relatively affluent areas, identify as White ethnic origin and are geographically clustered in the Southeast of England and East Anglia. Although the findings are not generalisable, they do provide new knowledge about some of the challenges and opportunities faced by parents of babies and toddlers in accessing and spending time outdoors. Key findings were:

- **Access to outdoor spaces:** Almost a third of parents of babies do not have access to a private garden. Nursery is seen as having a significant role in providing regular access to outdoor environments
- **Being outdoors:** Babies and toddlers are happier and calmer and more observant outdoors - they can indicate their desire to be outdoors to their parents.
- **Parental attitudes and beliefs:** Spending time in nature is more important to parents of toddlers than babies. When outside parents feel the priority for toddlers is being active whilst for babies it is being healthy and sensory engagement.
- **A place where memories are made:** Parents commented on how much they and their child enjoyed being outside making memories together.



The full findings are available as a separate report [on our project webpage](#): *Making memories together* (Kemp, Josephidou, Durrant and Bolshaw, 2025).

c) A visual arts collaboration

We started to work with visual artist Alice Marcelino (<https://alicemarcelino.com/>) to develop a response to these initial findings about the everyday outdoor experiences of babies and toddlers from diverse cultural backgrounds living in London.

Having shared the findings, we co-developed a brief for a photographic project inviting parents and caregivers to submit a selection of photos that reflect everyday interactions of their babies and toddlers both indoors and outdoors. Once submitted, Alice then analysed the photos and created thirteen images that will be used as an exhibition to provoke discussions about the place of babies in outdoor spaces. Half of the images explore the idea of 'where are the babies' (see image 1) whilst the others play with the idea of child/nature and indoor/outdoor dualities (see image 2). You can listen to Alice talking about the project and see the full series of images here:

<https://cccu.yuja.com/v/tiny-humans-outdoors>.



Image 1

Image 2

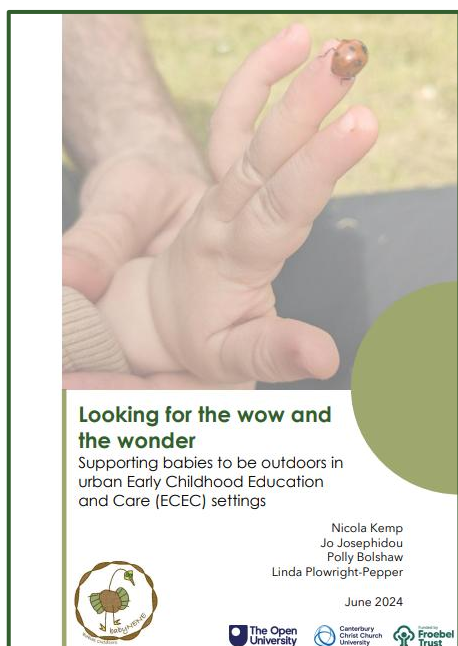
Credit: Alice Marcelino

2. Working collaboratively with ECEC settings in urban areas to 'naturalise' their outdoor areas

a) Baseline setting data

Five settings from across London expressed interest in participating in the project and in Spring 2024, each setting was visited by one of the research team to collect the 'baseline' data through interviews, observations, photos, written fieldnotes and audio-recorded reflections. Key findings were:

- **Outdoor spaces:** There are differences in the types of outdoor spaces provided for babies and toddlers although they tend to be artificial, flat and bounded. The urban context of the settings demands a creative approach to garden design and use, and educators share a desire to understand how to create more natural garden environments.
- **Getting outdoors:** Care routines and physical accessibility challenges can limit the time babies, and to a lesser extent, toddlers, are able to spend outdoors. Transitions between indoors and outdoors are emotional as well as physical for babies and toddlers and are a critical part of outdoor pedagogy. Parental attitudes to the outdoors can either support or limit babies' outdoor experiences in the setting.
- **Being outdoors:** Being outdoors supports child AND practitioner well-being, particularly for those without access to a garden at home. Setting gardens are recognised as being calming and soothing spaces for babies. For toddlers, the emphasis is on the outdoors as a space to be physically active.
- **Outdoor pedagogies:** Engagement tends to be focused on taking indoor activities outdoors. Nature engagement presents a critical pedagogical (risk/benefit) tension for practitioners and sleeping and eating are not routinely part of outdoor pedagogies. However, there is a shared desire to understand how to extend and develop outdoor pedagogies.



The full findings are available as a separate report [on our project webpage](#): *Looking for the Wow and the Wonder* (Kemp, Josephidou, Bolshaw and Plowright-Pepper, 2025).

b) A Froebelian inspired intervention

Our intervention was based on a Froebelian commitment to nature engagement and recognises the reciprocal opportunities for nature enhancement within ECE settings – we call this Nature Engaging Nature Enhancing (NENE) pedagogies². NENE is focused on four qualities that can be considered in relation to both babies and the outdoor environments in which they spend time.³ It encourages educators to

- be **attentive**⁴ 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.



Figure 1: An introduction to a Nature Enhancing and Nature Engaging Approach for Babies and Toddlers

² Josephidou, J. and Kemp, N. (2022) 'A life 'in and with nature?' Developing nature engaging and nature enhancing pedagogies for babies and toddlers', *Global Education Review*, 9(2), pp.5-22. Available at: <https://ger.mercy.edu/index.php/ger/article/view/594>

³ Josephidou, J. and Kemp, N. (2024) 'Developing nature engaging/nature enhancing pedagogies for babies and toddlers', *New Zealand Journal of Infant and Toddler Education*, 26(1), pp.23-28.

⁴ Kemp, N., Josephidou, J., and Watts, T. (2022) *Developing an ECEC response to the global environmental crisis: The potential of the Froebelian-inspired NENE Pedagogy*. Available at: <https://www.froebel.org.uk/uploads/documents/FT-NENE-Pedagogy-report-Dec-2022.pdf>

Nature enhancing strategies for outdoor spaces

A bespoke range of nature enhancing strategies for their outdoor spaces was developed for each setting in collaboration with an environmental advisor from Derbyshire Wildlife Trust (DWT). Each setting received a half-day visit from an environmental advisor during which they were encouraged to audit their babyroom gardens, discuss the specific characteristics, needs and interests of their babies and consider opportunities for nature enhancement. They were then sent a detailed report with suggestions including photographs of their garden to illustrate where new features would be best placed. Each setting received a second visit from the environmental advisor to help them complete a costed action plan (up to £500) for their outdoor spaces for babies and toddlers.

Interestingly, feedback from the advisor shows 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 that's amazing. Then you've got a resource there that you don't even need to do anything.

She found educators were removing natural elements were either due to Health and Safety concerns or because of their unfamiliarity with plants. In the following example, herbs had been mistaken for weeds leading her to reflect that really small changes understanding and awareness could make a big difference

You can pick these [herbs] and just literally break it up and put it under the baby's nose...because they don't know about these plants, they just thought they were, they were weeds. So, they could even take a baby over and just literally like one of the babies that isn't crawling. Hold the baby and do that over the herbs and like, imagine all the sensory experiences that baby could have

During the visits, the educators became *'really enthusiastic ...they were all talking about what we could put in to increase the amount of wildlife that's coming in'*.

The commitment to nature connection in the Bright Beginnings curriculum was perceived by the advisor as *'really exciting'* whilst noting that *'it's just that they [the educators] haven't experienced nature connection'*. The opportunity to spend time discussing nature with the educators whilst outdoors with the babies meant that by the end of the visits, she reflected.

Actually, this [nature] is something that is on their agenda. Well, it wasn't on their agenda, but it is now...

Interestingly, she also reflected on her own learning about the practical challenges of developing nature-based pedagogies with babies in the setting gardens noting *'if you are holding the baby, all you could do was walk around'*. As a result, her own pedagogy has started to change from thinking about activities to experiences and different ways of 'being' outdoors.

An outdoor experience day for practitioners to develop nature-based pedagogies

In March 2025 we held an outdoor experience day for babyroom practitioners and setting managers, which took place at one of the settings. Led by the project team in collaboration with Derbyshire Wildlife Trust, the day provided opportunities for practitioners:

- To learn about why spending time outdoors is beneficial to babies and toddlers
- To take part in experiences designed to support their engagement with nature, such as an outdoor mindfulness breathing exercise and off-site sensory walk
- To be introduced to the idea of a Nature Engaging and Nature Enhancing (NENE) pedagogy for babies and toddlers (see Figure x)
- To participate in shared reflective discussions about their existing practice and their ideas for how this could be developed.

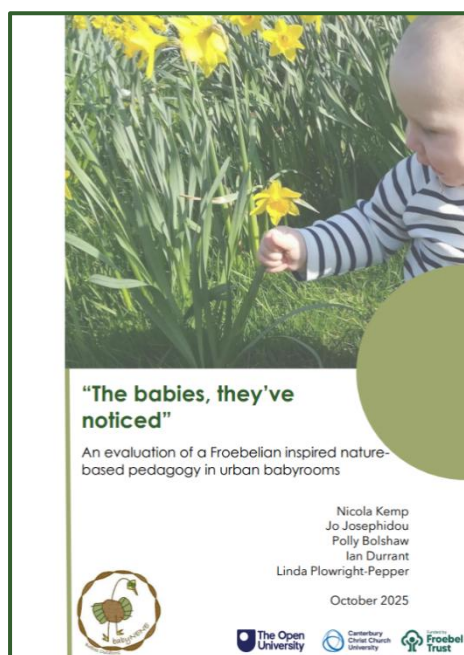
Feedback from participants showed it had inspired them and given them ideas about how to spend time outdoors in nature with babies and toddlers. Below are some of the 'takeaways' from the day:

- *Remember to breath in and out. Lay down with the children outdoors and look at the sky.*
- *Give babies the same opportunity I provide for older children.*
- *To take time to look around and observe nature in all places.*
- *More risk taking to explore nature, more outings.*
- *Do some of the activities with my staff at the next staff meeting.*
- *Encourage staff to not be afraid to explore nature with babies.*
- *Support parents with understanding how important it is to children outside.*

c) What changed?

In June 2025, we revisited the settings to find out what had changed through interviews, observations, photos, written fieldnotes and audio-recorded reflections. Key findings were:

- **Changes to babyroom gardens:** All the settings engaged in a co-design process to enhance the naturalness of their babyroom gardens. This mainly involved modest changes such as incorporating habitats and feeding stations to encourage wildlife and planters for growing herbs and flowers. Although the organisational approach to garden design meant that more fundamental changes weren't possible, the settings concluded that small steps make a big difference.
- **Changes in practitioner understanding and awareness:** Practitioners' interest in developing their outdoors for babies was ignited by the project, particularly through the opportunity to engage with an environmental specialist. This project demonstrates the value of creating spaces for knowledge exchange and collaboration between early childhood and environmental specialists.
- **Changes in attitude:** Practitioner attitudes to the outdoors have changed from a place to 'do' to one in which just they can just 'be' with babies. Spending time outdoors and engaging with nature is perceived as both enjoyable and beneficial for adults and babies alike. This points to the value of Continuing Professional Development (CPD) that is experiential.
- **Changes in practice:** Practitioners evidenced the changes they have made in their nature-based practices with babies, in ways that align to the Froebelian qualities of being attentive, responsive, nurturing and questioning. They also reported the ways in which the behaviour of the babies has changed - 'the babies, they've noticed.' This demonstrates the potential and value of our Nature Enhancing Nature Engaging (NENE) pedagogy within babyroom contexts.
- **Organisational change:** Navigating health and safety concerns remains a challenge. However, the project has created a space to acknowledge and talk about ways of managing the tension. Understanding the benefits of NENE for babies means that practitioners and managers now perceive it as a question of balancing benefit and risk and communicating this with families.



*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.** So yeah, you know, for them it's been a real game changer for them in terms of them noticing the flowers.*

(Manager, Chestnut)

The full findings are available as a separate report [on our project webpage](#): "*The babies, they've noticed*" (Kemp, Josephidou, Bolshaw, Durrant and Plowright-Pepper, 2025).

3. Creating an inclusive and democratic model of nature engaging & enhancing pedagogy for babies and toddlers

The final part of the project involved bringing all our stakeholders (settings, advisory group, BH, DWT) together to co-design a NENE toolkit for educators, families and anyone interested in supporting babies and toddlers outdoors. The co-design day was developed around the project research question

How can we support settings, particularly those in urban areas, to develop nature-based outdoor pedagogies for babies and toddlers?

The aim was to share and use the project findings to co-design resources that could be used by settings to support practice outdoors with babies and toddlers. It started by the project team providing an overview of the findings (summarised in this report). Educators from the five settings were then invited to share their experiences and learning with the group. Small group discussions focused on how to enable managers, support practitioners and communicate with parents in relation to NENE. Key messages were shared with the wider group, and these discussions were audio recorded and used by the project team to inform the development of the toolkit.

The toolkit which we have called babyNENE will take the form of a website - www.babiesoutdoors.co.uk - which will share information about NENE and provide a series of downloadable resources for educators to download. These resources include:

- Evidence of why being outdoors matters for babies and toddlers
- A list of non-hazardous plants to foster babies' sensory engagement, which are suitable to be grown in urban environments.
- Recommended books for babies and toddlers that encourage conversations about the natural world and children's outdoor experiences.
- An audit that educators can complete to consider their first steps to enhancing the outdoor space.
- An action plan template for enhancing outdoor spaces
- Suggestions of enhancements that can be made to outdoor babyroom spaces, based on recommendations made to the five settings by DWT
- Educator inspired ideas for nature engaging and nature enhancing experiences for babies

The website also signposts viewers to the [Young Children, the Outdoors and Nature OpenLearn course](#) and provides downloads and links to research reports, webinars, blog posts, journal articles and book chapters based upon [A life 'in and with nature?'](#) [An exploration of outdoor provision in baby rooms](#) and [A Froebelian inspired nature pedagogy in urban babyrooms](#). It will also share video clips of babyNENE pedagogies in practice, to be filmed in November 2025 as well as the images and accompanying voice-over by visual artist Alice Marcelino.

4. Conclusions and next steps

In this final section, we bring together and reflect on the overall successes and limitations of the project as well as outlining next steps.

a) Successes

Its key contribution is that it shows how a Froebelian understanding of nature engagement (NENE) can inspire and transform outdoor pedagogies even in challenging urban babyroom contexts resulting in:

- a) physical changes to the outdoor spaces babies access
- b) changes in educator understanding, attitudes and practices
- c) organisational changes

It also provides new knowledge about the attitudes and everyday behaviours of parents with babies and toddlers outdoors which has multi-disciplinary implications including for ECE, public health and environmental management.

Four reports and an academic research paper have been produced to disseminate this knowledge contribution within the ECE research and practice community. We have also presented the research at different events including

- British Early Childhood Education Research Association Conference (BECERA, 2023)
- Early Education event in Middlesbrough in 2024
- Education Futures conference in May 2024
- European Early Childhood Education Research Association (EECERA) conference in September 2024, August 2025
- Open University Knowledge Exchange Event, 2025

Although the project focused on five settings, their involvement in co-designing a babyNENE toolkit means that their experiences and learning will be used to benefit other educators. It builds on the aspects of the intervention that settings found most transformational in supporting change. As a result of our work, we were invited to attend the Bright Horizons Early Education Advisory Network.

The project also generated opportunities for knowledge exchange between organisations with early childhood and environmental expertise, particularly through its Advisory Group. The following quotes illustrate some of these wider benefits.

Derbyshire Wildlife Trust (talking about focusing on experiences for babies): “I found for my learning, because obviously this journey is fairly new for me as well, when I was talking about nature connection, it is the really small things, and the really small parts of nature so the whole thing was quite a mindful experience for me as well” (17-9-25 Advisory Group)

Babi Actif (talking about the babyNENE framework Figure 1): “the conceptualisation, you’ve almost done the job, it’s stuff that’s been going on in my head. But you’ve done the job for me. You’re putting it down on paper and actually putting it into a framework which is really interesting... It is useful, because for us this would be very useful for the forest play leaders, the forest school teachers that deliver the outdoor play sessions, for them to sort of encourage the way they think about what activities they’re putting on.” (25-2-25 Advisory Group)

Community Playthings: “This sense of not jumping in there with concrete and astroturf but just trying to allow the natural spaces to be the biggest part of your outdoor resource.... helping educators to fall in love with their outdoor space is certainly the beginning of everything” (25-2-25 Advisory Group)

b) Limitations

Our intention was to locate our research in settings in areas of socio-economic disadvantage and cultural diversity in London. At this time, no government funding was available for up to twos which meant that parents able to afford to send their baby to nursery were more likely to be affluent, particularly since the cost of provision is highest for this age group. Whilst the settings were culturally diverse in terms of both practitioners and families, none were in areas of socio-economic disadvantage. Subsequent changes in government policy (September 2024 onwards) enabling eligible parents of children from 9 months old to receive funding to attend ECE means that this is likely to be more possible in future research.

c) Post project plans to extend and develop impact

Although this was a two-year project, we recognise that the longer-term potential and impact have not been fully developed. Additional funding from the Open University Open Societal Challenge initiative will support the impact trajectory of this project which includes filming for the toolkit, an exhibition of the visual images (1c) and a pilot evaluation of the toolkit when used in practice.

An edited book ‘Outdoor Spaces in Earliest Childhood’, which will include contributions from authors around the world about the experiences of babies outdoors, has been commissioned by Routledge and is due to be submitted in January 2027.