



**Froebel
Trust**

Developing an ECEC response to the global environmental crisis

**The potential of the Froebelian-inspired
'NENE Pedagogy'**

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Foreword

To mark the Froebel Trust's 10th anniversary in 2022, a year of celebration focused on the theme of Children and Nature. The work described in this report was commissioned by the Trust to explore Froebel's ideas about children and nature in the context of the 21st century emergency in climate change and biodiversity. The authors summarise some of the language and ideas that Froebel used when he talked about nature, and review recent literature about human-nature relations. They conclude by proposing that a holistic perspective, which recognises the interconnectedness and mutuality of relations, can support sustainability.

A 'nature engaging and nature enhancing' (NENE) pedagogy is conceptualised for early childhood education and care (ECEC). This pedagogy requires a change in the ways that we conceive human-nature relations - being in unity; and it demands a reorientation in practice to reflect this repositioning.

The authors invite everyone to think about the principles and concepts that led to its creation and they suggest some practical ways that early childhood practitioners can adopt a Froebelian-inspired NENE pedagogy.

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Context

This scoping project set out to explore the potential of the concept of '**Nature Engaging and Nature Enhancing**' (**NENE**) pedagogy as a research and practice focus for the Froebel Trust from 2022.

The concept derives from the Froebel Trust funded project 'A life in and with nature in the period of earliest childhood: understanding provision for 0-2s in English babyrooms.' This research revealed that whilst the pedagogic potential of the outdoors for babies and toddlers appears to be generally recognised, there is little emphasis on supporting them to engage with the natural characteristics of the outdoor environment.

A further concern relates to the way that the outdoor environment is primarily positioned as a resource that supports human (child) development with its potential in terms of biodiversity unacknowledged.

NENE pedagogy is a response to these concerns and offers a way of thinking about ECEC that emphasizes practices that support both human and planetary health (Josephidou and Kemp, 2022).

This report positions and develops the concept of NENE pedagogy through consideration of three key questions:

- **How is the concept of NENE specifically Froebelian?**
- **Where does NENE pedagogy sit within contemporary research/practice?**
- **In what ways does NENE pedagogy respond to the global environmental crisis?**

We start by outlining the methodology including how the concept was first derived and then refined and considered more fully within the light of Froebelian philosophy.

'Nature engaging and nature enhancing' (NENE) pedagogy is conceptualised for early childhood education and care (ECEC). This first requires a change in the ways that we conceive human-nature relations - being in unity. Second, it demands a reorientation in practice to reflect this repositioning.

The authors suggest some practical ways that early childhood practitioners can adopt a Froebelian-inspired NENE pedagogy and invite everyone to think about the principles and concepts that led to its creation.



Methodology

Background

The initial research project focused on the question, ['What outdoor provision do English ECEC settings make for under twos?'](#) It employed a mixed methods approach involving three progressive phases: narrative literature review, survey and case study.

Having been inspired by the Froebelian understanding of the value of being 'in and with nature' from birth, the research evidence offered a different view from the fairly common contemporary perspective that nature itself is risky and very young children need to be protected from it. In practice, this understanding results in the widespread use of artificial grass and soft surfacing and the absence of natural features in the outdoor spaces provided for the youngest children.

It was also notable that even where the outdoors is valued and prioritised within practice, there is little awareness of the environmental value of outdoor spaces and how this could be enhanced. This led to the tentative concept of NENE pedagogy (Josephidou and Kemp, 2022).

The aim of this follow-up consultancy project was to problematise and explore the potential of the concept in more detail. Specifically, it sought to explore how the concept of NENE is Froebelian.

It is not a perfect term and continues to be debated. For example, it could be argued that humans cannot 'enhance' nature (Tovey, 2022, personal communication). Therefore, the concept of NENE is offered in the spirit of dialogue in the hope that it will prompt further research and conversations about pedagogy.

Analysis

A Positive Discourse Analysis of the first two chapters (which deal with early childhood development) of Froebel's seminal work 'The Education of Man' was undertaken using an eco-linguistic approach to explore the language and discourse Froebel uses in describing human-environment relations.

Eco-linguistics considers the impact of language and discourse in describing, but also potentially aggravating or alleviating environmental problems (Fill & Penz, 2018).

Whilst critical discourse analysis can expose problems associated with language use, it is of limited use unless more beneficial forms of language are identified to move on towards as an alternative.

Positive Discourse Analysis engages with this potential and offers a means of identifying 'new discourses to base society on'; such discourses might be considered as those that can 'promote being more rather than having more, well-being rather than growth and respecting rather than conquering nature' (Fill & Penz, 2018, loc. 5079).

It is important to note that the analysis was of a single translated text so may not reflect the nuances of the original language. It is one Froebel's earlier texts that was not about pedagogy and his ideas evolved over his lifetime. Despite these limitations, the analysis offers rich insights that have supported the development of the concept and what it could mean in theory and practice.



Froebelian language

Froebel's philosophy, as detailed initially in 'The Education of Man' firmly embeds human development 'in and with nature' (Froebel, 1887, p. 30). In the following section, examples of language drawn from the text are presented to demonstrate how educational activity (pedagogy) could be shaped to support this process. Three inter-connected themes were identified:

Relationships (relational processes)

Attentiveness (that which we follow or attend to)

Qualities (qualities called for in our ways of being)

It is important to note that in later life, Froebel published his most important concept - the Law of the Sphere. It is within that concept (of Life Unification) that all his other ideas become subsumed.

Relationships

The young child is understood to experience life in terms of its continuity and connection and a sense of being "in and with himself, his family, nature, and God is as yet a unit" (Froebel, 1887, p. 56).

From birth, sensory experiences, particularly in the natural environment, are understood to play a vital role in developing the child's sense of the inner and outer world and the constant flow between them.

'There is developed in the child at this stage his own life, his life with parents and family, his life with a higher invisible spirit, common to both, and particularly his life in and with nature, as if this held life like that which he feels within himself' (Froebel, 1887, p. 54)

Play is considered a relational language through which inner and outer connections can be experienced and enacted, and through this can offer a sense of harmony or balance.

Froebel described play as the,

'...purest, most spiritual activity of man...typical of human life as a whole - of the inner hidden natural life in man...it gives therefore joy, freedom, contentment, inner and outer rest, peace with the world...'
(Froebel, 1887, p. 54)

Creative and productive activity is important for healthy development and aligns human activity with the life of which it is an expression.

Attentiveness

The analysis highlighted a three-fold focus concerning the importance of attendance to inner experiences, wider life processes and a sense of their interconnection.

Expressions of inner experiences are described in terms such as 'self-activity', 'pupil's nature', 'individuality', "his nature...human life in the child" (Froebel, 1887, p. 22) and "the centre and fulcrum of the self/'his self" (Froebel, 1887, p. 21).

Expression through wider life processes is described in terms such as "the silent teaching of nature" (Froebel, 1887, p. 8). Froebel reiterates the idea that people should 'consider and observe' nature, which is identified as 'the chief point of reference' for human development.

Froebel argues that during early childhood,

'...life in and with nature, and with the clear, still objects of nature must be fostered at this time by the parents and members of the family as the chief point of reference of the whole child-life...' (1887, p. 30).



The sense of interconnection is developed through:

- the use of analogies of the natural world in relation to human activity;

and

- parallels between human activity and that within other life forms or processes.

Essentially, Froebel calls us to conceive of ourselves collectively as an expression of the same life 'source'.

For Froebel, this was a spiritual connection to God (he was a Christian but more recent Froebelians have interpreted his work in secular terms or in relation to other religious beliefs).

'The activity of the senses and limbs of the infant is the first germ, the first bodily activity, the bud, the first formative impulse; play, building, modelling are the first tender blossoms of youth' (Froebel, 1887, p. 34)

He notes the basic requirement for plants and animals to be given 'space and time' to develop properly 'in accordance with the laws that live in them' and calls us to apply this understanding to young children.

However, it is not just a case of what the child can 'receive and absorb from without' but, 'much more...what he puts out and unfolds from himself' (Froebel, 1887, p. 278).

This excerpt highlights the mutually influential relationship between the inner and external world and the importance of being attentive to that which is expressed through us and surrounding life.

Qualities

Adults' responses to children's expressions of their relations with the natural world are described by Froebel through terms that include a need for being 'observant', 'passive', 'following', 'trustful' and 'yielding'.

Adults are called to 'guard', 'protect' and 'respect' this expression of life and to gently support its development; they will 'cultivate', 'foster', 'nurture' and 'nurse'. Froebel argues that such a response might be instinctive but that educators should behave "consciously, as a conscious being acting upon another being which is growing into consciousness" (1887, p. 64).

This is a path of deeply considered human learning about ourselves in the world. It aligns with contemporary understandings of holistic educational practices. When Froebel articulated his 'Spherical Law' later in life, he drew attention to the interconnectedness of everything in the universe.

NENE pedagogy is situated within Froebel's overarching idea of 'Unity' (Bruce 2021: 10) and supporting children to achieve 'life unification'. (Wasmuth, 2019: 42).

Implications for NENE

NENE was conceived of as a pedagogical concept to highlight a reciprocity in the relationship between the well-being of humans & environments (Josephidou & Kemp, 2022).

The adjectives '**engaging**' and '**enhancing**' were chosen to emphasise these two mutually inter-connected dimensions of well-being. The noun '**nature**' referred primarily to the external environment defined by Hartig, Mitchell, de Vries and Frumkin (2014, p.208) as,

'...the physical features and processes of nonhuman origin that people ordinarily can perceive, including the "living nature" of flora and fauna, together with still and running water, qualities of air and weather, and the landscapes that comprise these and show the influence of geological processes...'

The preceding analysis reveals that in Froebelian philosophy, nature is understood as also including human 'nature' (the self, one's inner life, and dispositions).

This holistic understanding of nature adds depth to the concept and is helpful in thinking about its application in practice.



Drawing upon the language and insights from the analysis, **nature engaging** could encompass behaviours such as:

- Following children's lead and interests
- Observing children in natural environments, valuing the connections they make, helping them to understand how everything links
- Tuning into/being aware of natural processes and cycles (weather, light, seasons etc.) and the engagement opportunities these might offer
- Valuing 'passive' and 'slow' ways of being outdoors to facilitate feeling, thinking, sleeping
- (Observing, supporting and extending) children's play and symbolic representation - an important way of connecting the 'inner and outer'

Nature enhancing suggests attendance to what can be offered, rather than what can be received from nature.

This could be underpinned by behaviours such as:

- Finding out what humans and non-humans need to flourish
- Becoming familiar with the local environment and its specific needs
- Creating 'wild' spaces
- Growing, eating and composting edible plants

The Froebelian characteristics of this pedagogy are summarised in Table 1.

All these behaviours could be cultivated through a relational pedagogy that includes regular hands-on experiences of natural environments and promotes creative and imaginative play responses (through storytelling, art, music, drama & dance).

Table 1: Froebelian characteristics of NENE pedagogy

NENE pedagogy	
Purpose	Human & environmental well-being
Perspective	Holistic Starting point of connectedness
Language	Relational
Focus	Whole From birth
Pedagogy	Prioritises play
Context and environment	Nature as 'chief point of reference'
Qualities	Attentive, observant, nurturing, trusting

Discussion

NENE pedagogy in research and practice

Having refined and developed the concept of NENE (Josephidou and Kemp, 2022), this part of the report first discusses its distinctiveness in relation to existing nature-based research/practice and then considers its relevance to the contemporary context of global environmental crisis.

The following review of literature includes key bodies of contemporary research that directly relate to NENE. This reveals that ‘attention’ is currently identified as important in human-environment relations in two ways: firstly, in terms of the benefits to human and environmental well-being through retraining attendance towards natural environments; and secondly, where the need to be attentive to the qualitative and quantitative loss of opportunities to engage with natural environments is concerned.

Restorative potential of natural environments

The restorative potential of natural environments for human attention is now well-researched although not in relation to very young children. Attention Restoration Theory (ART) describes the way in which executive functioning and self-regulation are dependent on directed attention as a finite resource, which can become fatigued after extended use, leading to negative emotional states.

ART is based “on the simple premise that directed attention might be more likely to recover if it is allowed to rest.” (Kaplan & Kaplan, 1989, p.48). Natural environments have been found to be particularly restorative as they can stimulate involuntary attention without monopolising attentional channel capacity.

According to the theory, restorative environments must contain the four components of 'being away', extent, fascination, and compatibility with one's inclinations (Kaplan & Kaplan, 1989). Extent requires that the environment is "rich enough and coherent enough so that it constitutes a whole other world" (Kaplan, 1995, p. 173), and fascination should be that which requires little effort, allowing one's attention to recover through the opportunity for reflection and the exploration of other thoughts and mental connections (Kaplan, 1995).

There is a significant body of empirical evidence to support this theory across diverse participant populations. Specific benefits have been observed for individuals with attention disorders after spending time in green spaces (Collado & Staats, 2016, Faber et al, 2001, Chawla, 2015).

Health benefits of attentiveness to nature

Nature contact studies have also identified a variety of psychophysiological responses in the form of decreased arousal and perceived stress levels.

A meta-analysis of studies (McMahon & Estes, 2015) that has examined the effect of contact with natural environments on positive and negative affect, has indicated how even brief contact is associated with several positive effects.

These include decreased stress and decreased blood pressure alongside assessments indicating greater emotional well-being.

However, it is important to consider that the responses of very young children to natural environments might be different (Korpela et al., 2002).

This established body of research clearly recognises the human health benefits from being attentive to the natural environment.

However, environmental changes are recognised as undermining healthy human/environment relations and the restorative potential of the natural environment. Pyle (2003, p.9) argued that losses of environmental richness and diversity were leading to “a cycle of loss and disaffection” whereby:

‘As the richness of the neighbourhood diminishes, the power of the neighbourhood to fascinate, arouse, excite, and stimulate also passes into dullness, ennui, and apathy. Those who know and recognize less, care less, and therefore act less, leading to still more losses.’

Changes in our human responses to these environmental losses have been identified in terms of ‘specific qualities of attention, ways of learning and thinking about the natural world’.

This is understood as human disconnection from nature (Taylor & Kuo 2006; Louv 2005; Taylor 2013) with an accumulating effect over time described as an ‘environmental generational amnesia’ (Kahn, 2002).

Such a process involves a gradual adaptation to the loss of “actual nature and to the increase of technological nature” and through this humanity lowers the “baseline across generations for what counts as a full measure of the human experience and of human flourishing” (Kahn et al., 2009, p. 37).

In this way, environmental degradation can increase, but each generation tends to take that degraded condition as the nondegraded condition, which operates as an ongoing vicious cycle. The 'cost' of this cycle is seen in the poor health and well-being of humanity and the global environment.

Healthy human-environment relations

The research practice imperative is to break this vicious cycle and promote healthier human/environment relations. This has given rise to various 'nature connection' tools to measure an individual's orientation to nature.

These measures have been developed according to psychological traits including the "'affective' domain...cognitive (knowledge and beliefs) and behavioural/psychomotor (actions and experiences) aspects" (Ernst & Theimer, 2011, p. 580).

Tools include questionnaires or sets of descriptive scales as a means for measuring traits within the individual and some have been adapted for use with children (although not with under sevens).

The focus initially was on direct contact with a natural environment, but there has been a shift away from measuring time spent in a natural environment and towards the experiential depths with an emphasis on 'actively noticing nature' (Richardson et al, 2021).

Five pathways to nature connection have been identified: contact, meaning, emotion, beauty and compassion (Lumber et al, 2017).

Connecting to nature in childhood

Childhood experience is understood as being foundational to adult nature connection (Natural England, 2019; Hughes et al, 2018) and children's loss of outdoor access is identified as a problem. There is a concern that "many children today are considered to have a low connection to nature, presenting a critical challenge for the future of nature conservation" (Hughes et al., 2018, p. 11).

A role is determined for education in addressing this problem (Malone & Waite, 2016) and nature connection features in the measurement of intervention impacts. The following is one example of recent educational research exploring the promotion of nature connection and reflects some of the benefits and limitations of this approach.

The Natural Connections Demonstration Project explored the potential of outdoor learning by developing support structures to a network of schools in one UK region.

The project was developed to support a long-term aim outlined in The Natural Choice White Paper (2011) to "enable all children within England to benefit from learning experiences in their local natural environments" (Natural England, 2017, p. 2). However, the primary focus was clearly on human benefit whether understood in terms of children's learning or their health and wellbeing.



The prioritisation can be seen as reflected in the following comment about reasons for engagement with the project.

‘Many case-study interviewees reported that they engaged with LINE for reasons that were indirectly related to attainment, including behaviour, social skills, health and wellbeing, engagement with learning and enjoyment, all of which were cited as foundational to successful learning’
(Natural England, 2016, p. 86)

The outdoor space was positioned primarily as a resource to support human activity, rather than according to a reciprocity in human-environment relations in which one can support the wellbeing and development of the other.

Nature disconnection

Eco-literacy can be drawn upon to explore further this ‘nature connection’ discourse. Analysis of ‘The 5 pathways to nature connection’ (Lumber et al, 2017) demonstrates use of terms such as ‘routes’, ‘examine systematically’, ‘specific’, ‘predictors’ and ‘operationalising’. As well as demonstrating an orientation to human individualism, it appears to seek answers to ‘the problem’ of nature disconnection through an increasingly mechanistic approach to thinking.

This discourse and language (‘goal’, ‘predict’, ‘tool’, ‘success’, ‘intervention’ and ‘increase’) is also noted in research undertaken by Barrable et al (2021). They explore the potential for ‘Enhancing Nature Connection and Positive Affect in Children through Mindful Engagement with Natural Environments’. However, it offers a shift from a purely human-centric perspective recognising ‘nature connection’ as “an important tool in tackling climate change” (Barrable et al., 2021, p.1).

Reference is made to previous research in which there has been evidenced “success of short-term interventions in increasing nature connection in children” (Barrable et al., 2021, p. 1). Implications from findings refer to a ‘positive relationship’ in benefits to both human and future environmental well-being.

Positioning NENE in the human-nature debates

This review of the research literature helps to position the concept of NENE and to highlight similarities and differences with some other pedagogical approaches. These are summarised in Table 2 (overleaf), which illustrates a shift in emphasis promoted through language-use and pedagogy.

Significantly, there is a well-established evidence base about the benefits of direct nature-based experiences and attentiveness to the natural environment central to NENE.

However, NENE is based on the Froebelian principle of unity, so its focus is on strengthening an assumed connectivity, rather than forming a ‘connection’, building a ‘path’ or determining a ‘route’ from the individual.

It calls for both adults and children to engage with what it offers and be attentive to what can be given back.

As a holistic approach, NENE potentially aligns with new materialist and post-human theoretical perspectives.

It offers a different language and discourse – one of attentiveness to the ways in which we are “in and with nature.”

Table 2: The position of NENE in relation to existing research

	Existing nature-based research	NENE
Key Principles	Prioritise direct experience of natural environments	
	Concern about loss (qualitative & quantitative) of natural environments and the need to reverse this	
	Focus on attention	
Perspective	Anthropocentric	Holistic
Language	Linear	Relational
Focus	Individual, older children/adults	Whole, From birth
Aim	Make connections	Attune/be attentive to existing connectedness
Role of adult	Leading; Adult initiated	Following; Child-led
Priority	Human well-being / learning	Human & planetary health

The relevance of NENE pedagogy to the global environmental crisis

The characteristics and extent of the global environmental crisis are now incontrovertible. The latest reports from the Intergovernmental Panel on Climate Change (IPCC, 2018) and Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES, 2019) advocate for radical and immediate change to avert disaster.

Education is now widely regarded as an essential part of the required response to the global crisis. It is implicated in all 17 of the UN Sustainable Development Goals (SDGs) (United Nations, 2020) and highlighted in goal 4 which has an explicit focus on quality education. Target 4.7 is particularly significant as it demands that:

‘...by 2030...all learners acquire knowledge and skills needed to promote sustainable development, including among others through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship, and appreciation of cultural diversity and of culture’s contribution to sustainable development.’

National responses to this target have been varied but in 2022, the UK launched its first Sustainability & Climate Change Strategy (DfE, 2022).

Applicable to all educational phases in England the strategy seeks to ‘provide opportunities to develop a broad knowledge and understanding of the importance of nature, sustainability and the causes and impact of climate change and to translate this knowledge into positive action and solutions.’

It uses the language of nature connection and offers the early years foundation stage (EYFS) framework as the means to ensure that all children (birth to five) ‘develop an understanding of the world and the natural environment’.

It is therefore a strategy that the Early Childhood Education & Care (ECEC) sector will be expected to respond to, but which currently lacks practical guidance.

NENE pedagogy is a response that could be adopted by the sector. It is based on a holistic understanding of human/environment relations and builds on and extends existing ECEC practice.

Prioritising a holistic perspective

A holistic worldview has been identified as necessary in dealing with ecological issues. A recent systematic review of international research published on early childhood education for sustainability called for a more holistic understanding of the concept within the sector (Yildiz et al, 2021).

Earlier work by Davis & Elliott (2014) focused on ECEC similarly highlighted the need to consider the ‘co-evolution of social and biophysical systems played out in responsive and responsible relationships” (p.13).

NENE provides this, prioritizing relational processes and offering pedagogical guidance to support children’s developing relations in and with the world. Such a perspective could offer an educational template for moving from ego to eco-centric ways of being in the world (Müller & Pusse, 2017) through ECEC practices that are attentive and supportive to the life expressed through the child and the natural world.

The nature and extent of the environmental crisis demand urgent responses (UN, 2021). This was recently emphasised by Greta Thunberg at the World Economic Forum in Davos in 2019 when she declared:

‘I want you to act as you would in a crisis. I want you to act as if our house is on fire. Because it is.’

Thunberg’s words are challenging not least because they suggest the need for certainty and a collective commitment to strategies that can be applied without delay.

Emergencies, as climate scientist Mike Hulme (2014) points out, demand quick and rapid responses and they can’t be ignored.

However, education is an inherently slow process (Kemp & Scoffham 2021) so the language of crisis may not be helpful in guiding pedagogic practice.

Furthermore demanding, authoritative language and behaviour indicated by the crisis are antithetical to ECEC practice, particularly when considering the youngest children.

NENE pedagogy builds upon existing ECEC practice but extends it through its dual focus on human and environmental wellbeing. It is a response that is both simple and at hand – and hence utterly Froebelian,

‘It is by far easier than we think to promote and establish the happiness and welfare of mankind. All the means are simple and at hand; yet we see them not...perhaps we do not notice them. in their simplicity, naturalness, availability and nearness, they seem so insignificant we despise them.’ (Froebel, 1887, p. 62)

Conclusion

The aim for this project was to problematise the emergent concept of Nature Engaging and Nature Enhancing (NENE) pedagogy and consider its potential.

Specifically, this involved exploring its alignment with Froebelian philosophy. Analysis of 'The Education of Man' revealed language and ideas that supported the theoretical development of the concept and what it might look like in practice.

Having reviewed relevant literature, the particular value of NENE is in the way it begins from an understanding of connectedness and unity, thus offering a means of promoting harmonious (and hence transformative) human/environment relations from birth.

This is particularly important in the contemporary context of environmental crisis, and it offers a response for the sector to the crisis that is both simple and 'at hand.'



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