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Holistic Education for Environmental Sustainability: Cultivating Deep Connectivity Through Hands and Heart

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Abstract

Environmental education projects can often be short-term or in extra-curricular spaces, rather than holistically nestled into a way of teaching and learning. Research has highlighted the importance of considering the emotional and active aspects of learning, arguing that we must address education for sustainability through the hands (doing) and the heart (feeling) as well as the head (thinking). Here we ask how this consciousness can be embedded into a school ethos. This paper reports on a co-created ethnographic case study, drawing primarily on observation data, aiming to understand how connectivity with nature is cultivated within a Steiner Waldorf school in the UK. We found that Steiner Waldorf Education cultivates connectivity with nature through play and creativity, the use of songs and verses, prevalence of natural materials, a reverence for Mother Earth and a focus on the rhythm of the seasons through festivals. Through this holistic practice, a strong connectivity with nature is fostered. Based on the evidence that connectivity with nature increases pro-environmental behaviours, we seek to contribute to the environmental education literature the potential of a holistic approach to education that foregrounds the hands and heart in the elementary stages of education rather than addressing environmental challenges head on. We argue that this approach can inspire change through strengthening our relationship to the natural world, thus empowering young people to shape a more sustainable future.

Keywords: education for environmental sustainability; indigenous worldviews; holistic education; Steiner Waldorf Education; connectivity to nature; sustainable futures

1. Introduction

There is an increasing interest, and an urgent need, to examine the ways in which young people learn about the natural world and the multifaceted challenges humanity faces due to excessive consumption and the consequent exploitation of the environment. This urgency is reflected in the United Nations Sustainable Development Goals—specifically Goal 4.7, which calls for education that promotes sustainable lifestyles (United Nations, 2025)—and in UNESCO's plea for pedagogical responses that find solutions for a more sustainable world (UNESCO, 2025). While policymakers globally seek to foster collective environmental responsibility in the next generation, there remains no clear consensus on how to achieve this. Consequently, the field of Education for Environmental Sustainability (EES) has become a critical area for research (Rushton et al., 2024). The context for this research is in a Steiner Waldorf School in the UK. Influenced by the philosophy of Rudolf Steiner, these schools take a holistic approach to education towards freedom (Steiner, 1894/2011, 1907), emphasising creative independent learning (Nielsen, 2006; Lucas & Spencer, 2025).

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This provides an alternative to mainstream approaches to education, which remain situated within a Western neo-liberal worldview that positions humanity as dominant over nature. Mainstream education is often tasked with developing skills for competition in a global knowledge economy (Robertson, 2005), a process that risks reproducing the values of a capitalist system (Illich, 1995). Although outdoor learning, forest schools, and gardening are finding a greater foothold in primary education (O'Brian, 2009; Cudworth & Lumber, 2021), there is much to be gained from exploring worldviews that portray a deeper more intrinsic connectivity between humans and the natural world (Brown & McCowan, 2018; Brink & Wamsler, 2019; L. T. Smith, 2016; Kimmerer, 2013). Integrating indigenous knowledge into environmental education not only benefits the Global South (Ajaps, 2026), but its relevance to the Global North is equally significant, providing a framework to challenge the dominant epistemologies that sustain our unsustainable relationship with the Earth.

The landscape of environmental pedagogy is defined by a plethora of terms with distinct connotations, from Environmental Education to Educational Praxis for Planetary Health (Redvers et al., 2023). Environmental Education (EE) traditionally focuses on awareness and conservation to foster ecological literacy (Kopnina, 2012), while Education for Sustainable Development (ESD), favoured by UNESCO, seeks to balance environmental protection with social equity and economic viability (UNESCO, 2025). This paper primarily utilises the term Education for Environmental Sustainability (EES), which narrows the scope of ESD back toward the environmental pillar while recognising that we must move beyond knowing about nature to understanding the systemic requirements for planetary health. Crucially, EES emphasises that emotional and active aspects of learning are as vital as the cognitive (Dunlop & Rushton, 2022). It is argued that holistic approaches that incorporate hands, heart and head have the most transformative impact on young people's attitudes to sustainability (Skilling et al., 2022; Olsen et al., 2024; Gal, 2024; Verlie et al., 2021; Renowden et al., 2022).

In this paper, I consider how this education could go deeper, working with the natural world as well as for it. Drawing on the wisdom of indigenous ontologies, this requires us to recognise that we must learn from the environment as a living subject rather than merely an object of study. We work with the Earth, in kinship, for her sake as well as ours (Topa & Narvaez, 2022; Kimmerer, 2013). The research presented here demonstrates that Steiner Waldorf Education (SWE) exemplifies this holistic approach, offering a creative education system grounded in a profound connection to the local environment. This has the potential to affect long-term attitudes and behaviours for environmental justice and social change, and to empower future generations to address global challenges. Through a co-created ethnographic case study utilising observation and documentary analysis, this paper explores how connectivity with nature is cultivated through a whole-school ethos.

By reviewing the literature on EES and nature connectivity, I establish the importance of emotional engagement with nature in fostering pro-environmental attitudes. After providing an overview of SWE and the research methodology, I present thematic findings that illustrate where and how this case-study school provides space for a connection to Mother Earth. I conclude that adopting a holistic nature-centred approach, which refrains from a focus on environmental crisis in the primary years, allows for a transformative shift away from the paralysis of eco-anxiety toward the development of a resilient lived eco-consciousness.

2. Approaches to Education for Environmental Sustainability

Environmental Education has a long history of considering how young people learn about the natural environment and its protection (or destruction). Approaches over the

years have varied, from conservation study to forest schools. Traditionally, the field has prioritised cognitive development, emphasising scientific knowledge and the logical understanding of how specific behaviours impact the environment (Kopnina, 2012; Sipos et al., 2007). In recent decades, however, the rise of climate change education has brought this cognitive focus under scrutiny. Critics argue that an over-reliance on 'head-based' learning can trigger eco-anxiety and a sense of paralysis in the face of daunting global challenges (Pihkala, 2020; Kelsey, 2016; Olsen et al., 2024; Ojala, 2005). Therefore, recent research highlights the importance of considering also the emotional and active aspects of learning (Dunlop & Rushton, 2022), arguing that we must address education for sustainability through the heart and hands, as well as the head (Renowden et al., 2022).

Indeed, scholars increasingly argue that the impending doom narrative of climate change can be mitigated by creating spaces where emotions are processed (heart) and agency is reclaimed through action (hands) (Verlie et al., 2021). However, much of the research in this area considers specific environmental education projects, interventions or short-term initiatives, often in non-formal or extracurricular settings (Renowden et al., 2022; Gal, 2024; Trott, 2021). Many argue that holistic approaches that incorporate head, heart and hands have the most transformative impact on young people's attitudes to sustainability (Skilling et al., 2022; Olsen et al., 2024). For instance, Renowden et al. (2022) explored an ArtsScience project that integrated head, heart and hands, allowing for a more nuanced understanding of how to create connections to nature, giving rise to a 'strong foundation to deepen ecological awareness' (Renowden et al., 2022, p. 520). Gal (2024) discusses how hope can be instilled into environmental education by utilising a head, heart, hands framework. Sipos et al. (2007) also found evidence of transformative learning when organising a course that 'integrated transdisciplinary study (head); practical skill sharing and development (hands); and translation of passion and values into behaviour (heart)' (p. 68).

This call for a more holistic approach to learning for environmental sustainability also draws on a growing body of literature that makes the case for creating a connection to nature, and how this is linked to pro-environmental behaviours (Cheng & Monroe, 2012; Chawla, 2007). There is an increasingly well-supported argument that affective factors can predict pro-environmental behaviours (Kals et al., 1999), and specifically that measuring affective and experiential connection to nature through a Connectedness to Nature Scale (CNS) can directly predict environmental behaviours (Mayer & Frantz, 2004). Approaches such as perspective taking and a sense of inclusion with nature can also lead to commitments to protect nature (Schultz, 2000).

The rise in interest in outdoor learning, forest school and activities such as citizen science, which encourage a hands-on approach to nature, also advocates for the importance of moving beyond teaching *about* environmental sustainability and protection, to taking action *for* it (O'Brian, 2009; West & Pateman, 2017; Safaya & Falkenberg, 2023). There are benefits for the individual, with increasing evidence that spending time in nature can significantly improve wellbeing (Pirchio et al., 2021; Reimer et al., 2023), while there are also benefits for the environment, as spending time outdoors helps children develop positive values about nature (Davis et al., 2006).

There is growing evidence that childhood connection and experiences with nature can have a positive impact on pro-environmental attitudes later in life (Chawla, 2007; Nord et al., 1998). Many retrospective studies confirm that childhood immersion in nature strongly correlates with environmental stewardship in adulthood and that spending time in nature leads to feeling connected to nature (Wells & Lekies, 2006). Wells and Lekies (2006) link pathways from childhood nature experiences to adult environmentalism. Through interviews with 2000 adults in the United States of America, using model testing and cross-

validation procedures using structural equation modelling, they found that childhood participation with nature such as hiking or playing in the woods, camping, picking flowers or produce, planting trees or seeds, and caring for plants 'have a positive relationship to adult environmental attitude' (Wells & Lekies, 2006, p. 1).

Nord et al. (1998) investigate the relationship between different types of forest-related activities and environmentalism, distinguishing between 'extractive' activities (such as hunting or fishing) and 'appreciative' activities (such as hiking or nature photography). Their findings demonstrate that individuals who engage in appreciative forest recreation exhibit significantly higher levels of environmental concern and pro-environmental behaviour compared with those involved in extractive activities or those with no forest contact. This research supports a compelling case for the role of childhood nature connectivity in shaping adult consciousness: by fostering appreciative engagement with the natural world during a child's formative years, we provide the experiential 'heart' and 'hands' foundation necessary for environmental values to take root. When a child learns to perceive nature as a space for wonder and aesthetic appreciation rather than merely a resource for extraction, they develop a psychological and emotional affinity that Nord et al.'s work suggests translates into a lifelong commitment to ecological consciousness.

Perhaps most pertinently, Chawla's (2007) paper on childhood experiences associated with care for the natural world provides a comprehensive theoretical framework to explain a consistent finding in environmental research: that adults who take active care of the environment—including environmental activists and educators—repeatedly attribute their commitment to two key factors: positive direct experiences of natural areas in childhood and role models who showed an appreciative interest in the natural world. Her work provides a robust framework and is foundational in the field of environmental psychology, which gives significant support to the argument made here.

Chawla argues that nature connection is not simply a cognitive achievement but an emotional one. By drawing on attachment theory, she suggests that children form emotional bonds with the Earth, like the way they bond with caregivers. When a child is allowed autonomous exploration in nature alongside a mentor who models fascination and care, it impacts their identity. Using Clayton's (2003) concept of environmental identity, Chawla (2007) argues that childhood immersion in nature facilitates a self-identification with the natural world, shifting the individual's perspective from anthropocentric utility to a more biocentric or relational sense of self. This research reinforces the case that building connectivity in childhood is vital; it is not just about teaching facts but about creating a life history where the natural world is experienced as a place of safety, beauty, and kinship. This emphasis on kinship also aligns with the principles of the indigenous worldviews (Topa & Narvaez, 2022) that provide an epistemological framework within which to situate this approach.

What is clear from this literature is that there is strong sociological evidence that appreciating nature through contact with the wild outdoors is key to environmentalism (Nord et al., 1998), and that there is strong psychological evidence that deep emotional engagement with nature in childhood can become a permanent part of a person's identity, leading to pro-environmental attitudes and an instinct to care for the natural world (Chawla, 2007). This demonstrates why asking how we can cultivate connectivity with nature in childhood, and through schooling, matters, in terms of sowing the seeds for a more environmentally just and sustainable future.

Indeed, what has received less attention in the educational literature is how we can educate young people to find balance and care in their relationship to the natural world, through an epistemological grounding that enables them to feel deeply connected to the natural world, physically, emotionally and spiritually. This goes beyond short-term

interventions. It requires consideration of how a school ethos can cultivate this connection in order to create a connectivity that centres nature and incorporates humanity within it, not outside or above it. Drawing on indigenous epistemologies, there is an opportunity to explore how honouring Mother Earth, seasonal change and natural materials might facilitate the development of a worldview that challenges the dominant Western discourse of humans as stewards or dominators, (even protectors) of nature as an objective other. So much of our education works so firmly within the dominant worldview and intellectualises our role in the causes and solutions of climate change and biodiversity loss; among other challenges, it is unsurprising that young people often feel helpless in the light of such contradicting narratives that call for growth and technological or industrial advancement while catastrophising the repercussions for the planet.

In contrast to mainstream education, which often intellectualises the climate crisis embedded in a narrative of industrial growth, indigenous worldviews offer a fundamentally different perspective: a holistic understanding of nature as a subject in its own right, with a profound reverence for Mother Earth and her seasonal changes (Brown & McCowan, 2018; Kimmerer, 2013). This requires recognising the spiritual aspect of our connection to the Earth (C. Smith, 2009), also fundamental to indigenous worldviews. Scholars increasingly argue that acknowledging these indigenous approaches is essential to rebalancing the human–nature relationship (Topa & Narvaez, 2022). This raises a critical question: how might an education system reflecting these ideals cultivate a connectivity that avoids the eco-anxiety produced when environmental challenges are addressed 'head on' with primary-aged children? Focusing first on active and affective engagement with nature, the potential impact of a school ethos that embeds this connectivity from the early years is a vital area of inquiry. Such an approach represents an ontological shift: moving beyond the mere conservation of the natural world toward a deep-seated kinship with it (Topa & Narvaez, 2022).

3. The Context of Steiner Waldorf Education

With the aim of understanding how education for sustainability can become a long-term holistically integrated agenda, this study investigates how a deep resonant connectivity with nature is cultivated, and how this impacts students' attitudes toward the natural world. This research is situated within a UK Steiner Waldorf School, an environment that operates independently of the state system and prioritises a holistic approach to child development (Nielsen, 2006). By valuing creativity and freedom of thought over standardised assessment (Oberski, 2009), Steiner schools provide a unique context for fostering civic and moral values (Dahlin, 2010).

Steiner Waldorf Education (SWE) is inspired by the work of Rudolf Steiner (1861–1925), an Austrian philosopher, scientist and educator. SWE is based on a theory of child development that understands the child as a three-fold human being; body, soul and spirit. The aim of SWE is to 'educate the child towards a holistic thinking that integrates knowledge gained from thinking, feeling and doing' (Easton, 1997, p. 88). Development is understood as moving through 7-year cycles. The first, which is associated with the kindergarten years in Steiner schools, equating broadly to pre-school, reception and year 1, is related to the development of the physical body, to the 'hands' (Bowen, 2022). This emphasises the importance of 'doing' through imaginative play and imitation, painting, making jam and bread, sewing, etc. Foundations are laid through the voice, and the growing of the inner physical organs, and learning occurs through play and manual activities. The second cycle, from the age of 7 to 14 is the main school years in a Steiner school, Classes 1–8, and equates to year 2 and key stages 2 and 3; this is related to the life forces (etheric forces) and the development of feeling, focusing on the 'heart' (Bowen, 2022). It is only in Class 1 that

the child enters formal education with the specific focus on literacy and numeracy (though these skills are developed vicariously in kindergarten). 'The child draws nourishment from experiences that develop consciousness of feelings and feed the imagination' (Easton, 1997, p. 88). The third cycle (age 14–21) incorporates the upper school and high school through to higher education and 'expresses the birth and development of the astral forces, those of the individual's soul life, and are closely aligned with thinking, the 'head'' (Bowen, 2022).

While of course, there exist many elements of thinking, feeling and doing at all stages, it is important to note the emphasis on the hands (doing) in the early years, drawing explicitly on feeling (heart) through the main years of school, and only focusing at a high level in the upper school on thinking (head), drawing on their development of the capacity to reflect and contemplate at a deeper level. Therefore, we might expect to observe environmental education strategies that prioritise experiential and affective connectivity with Mother Earth over purely cognitive models, particularly in the primary education years.

This approach offers a significant departure from much of the transformative environmental education literature. While existing research often focuses on transforming existing (and perhaps disconnected) attitudes, this study considers the impact of formative connectivity. We explore what happens when the seed of nature connectivity is planted so organically that it becomes a foundational aspect of the pupil's worldview, rather than a corrective intervention. This offers a new lens through which to explore this important debate.

SWE is also associated with four key aspects:

> ***Experiential learning**: both direct and imaginative experiences; **Interdisciplinary learning**: Thematic, cross curricular learning in 'blocks', where a topic is explored from different perspectives; **Play as a key approach in early childhood**: Understanding how children develop social, emotional, cognitive, and physical skills through active engagement in play; and **Creative Education**: Looking at how creativity is woven through the curriculum/ teaching day in all subjects, including singing and music, movement, and craft, with an emphasis on the history and nature of the 'head, heart, and hands' approach* (Lucas & Spencer, 2025, p. 6).

As such, SWE includes a strong emphasis on gardening and nature-based activities, such as growing plants, observing ecosystems and engaging with seasonal rhythms, on handcraft projects with natural materials, such as knitting, felting, clay modelling and woodwork, where there is often an emphasis on sustainable living, outdoor expeditions and fieldwork such as geology walks and ecology surveys and building or design challenges (Lucas & Spencer, 2025, p. 8). The ways that experiential learning can support deeper understanding is well-documented (Freire, 2000). The aspect of interdisciplinary learning allows for project work that can combine different subjects in a deep exploration of a particular subject. This means that connecting with nature might be covered in terms of biology (plant growth), cooking, citizenship, art (drawing plants), music (singing about nature), experimentation in science, practical skills (through gardening) and storytelling (through stories set in nature or about seasons and festivals) (Lucas & Spencer, 2025). The focus on outdoor learning can encapsulate all of the above aspects, which is key to the SWE philosophy that 'Learning in connection with nature has multiple dimensions of knowledge, social, physical and spiritual development, and deepens aesthetic appreciation' (Lucas & Spencer, 2025, p. 39). Learning through play is also increasingly recognised as an essential way to foster deeper and more memorable learning experiences (Parker et al., 2022) and, similarly, there is strong acceptance of the role of creativity in enhancing learning and development (Sharma & Sharma, 2025). This makes SWE an important context for research in EES.

4. A Co-Created Ethnography

This paper reports on the initial stages of a co-created ethnographic case study of a UK Steiner Waldorf School. The aim is to understand how connectivity with nature is cultivated within Steiner Waldorf Education (SWE), exploring school ethos, curricular, and approaches to learning. We explore this through an ethnographic approach that seeks to understand the subtle and holistic ways that nature is embedded throughout the Steiner School ethos, rhythms and practices. Using a co-created collaborative research design, this study aims to provide a deeper understanding of how education for environmental sustainability in SWE can shape sustainable attitudes and behaviours in both pupils, staff and the wider community of parents and alumni. Here we draw primarily on observation data that documents school ethos and the daily, weekly and seasonal rhythms of the school approach.

The research project was designed in two phases, with the first focusing on observations and documentation analysis while simultaneously working with staff and pupils to co-create the research design for the second phase of the project. Ethical approval for the first phase was sought from the Education Ethics Committee in March 2024 and consent for the observations was provided by the headteacher and all class teachers observed. We also recruited three teachers and eight students to co-design the research methods for phase 2, and to contribute to writing the research instruments. This was carried out over a series of 3 workshops, which took place during hour-long lunch breaks over several weeks. During these workshops we identified themes that could form part of the research instruments for phase 2. These included asking about involvement in festivals at school and how participants experienced the seasons. This also helped inform the observations, demonstrating how the findings are validated by the school community's own identification of what is important to their ethos.

Phase 2 of the research began in May 2025, with the observations ongoing during all three academic-year cycles (2023/24, 2024/25, 2025/26). Further ethical approval was granted that included the new aspects of the research design that were co-created with the school-based researchers. The principal researcher spent one morning per week in a classroom setting, spending at least one half-term with each year group from kindergarten to Class 8, making ethnographic field notes. Documents were collected from the headteacher and class teachers, who identified relevant verses, songs and stories for analysis along with curriculum documents spanning the whole school. Observation notes are referenced here along with the class that was being observed from kindergarten (K-Observation notes) to Classes 1–8 (C1-Observation notes). General observations of the school rhythm are simply referred to as Observation notes. Consent for phase 2 observations was given by all class teachers and the headteacher.

The case study school is a small independent Steiner Waldorf School in the UK. There is a strong sense of community in the school, with parents participating regularly in school festivals, fairs and other volunteering. The school has a baby group and parent and toddler groups, which take place over a morning and allow children to play in an environment similar to kindergarten. The school has four kindergarten rooms, each with up to 15 children aged 3–6. Children attend part-time, with the youngest starting for three mornings per week (9 am–1 pm) building up to four mornings and one full day (9 am–3.30 pm). The rooms are all named after trees and the three year groups are referred to as 'seeds' (3–4 year olds), 'leaves' (4–5 year olds) and 'buds' (5–6 year olds) (K-Observation notes). They stay in their classes with the same teachers over the three years. Children are nurtured in a daily rhythm 'with a balance of self-initiated play and adult-led activities across the 7 areas of learning in the Early Years Foundation Stage (EYFS)' (school website). There is an emphasis on creative play, both inside and outside, and children can explore the extensive gardens

and growing areas. The children regularly take part in seasonal activities and festivals (K-Observation notes).

Children enter the formal education in the year they turn 7. The main school has a cycle of eight years (7–14), where students stay with the same main teacher from Class 1 to Class 8. Each class has a cohort of between 12 and 25 pupils on roll (Observation notes). Classrooms have a homely feel and a large blackboard. Pictures of student art don the walls, and nature tables provide a beautiful feature with flowers, plants and items relevant to the season (Observation notes). Every classroom also contains numerous house plants situated around the room. Every classroom has a small table with a candle and some flowers, which is put in the centre of the room for the verses at the start and end of the day (Observation notes). The main school is conceptualised as lower school (Classes 1–5, ages 6–11) and middle school (Classes 6–8, ages 11–14). The children are held in a stable rhythm that helps them to feel safe and free to learn. Each day contains a 'main lesson', taught in blocks with a focus on a core subject, and a blend of other subjects timetabled throughout the day (school website). In middle school the curriculum broadens, with the gradual development of more independent learning, culminating with a year-long individual project in Class 8. The pupils then progress into the upper school (Classes 9–10, ages 14–16). The varied curriculum covers a wide range of subjects, with a focus on experiential learning and developing a connection to nature through outdoor education and initiatives. They work towards a Level 2 Diploma equivalent to 5–8 GCSEs, evidenced by a portfolio, in addition to Maths and English GCSEs (school website).

5. Results: Cultivating Connectivity

Based on observational data, several key themes emerged that contribute to the cultivation of nature connectivity within SWE: the observation of seasonal changes and festivals; the integration of natural materials and nature tables; a consistent focus on outdoor learning and play; the subjectification of nature through projects, songs, and verses; a pervasive reverence for Mother Earth in daily blessings; and the promotion of consciousness, creativity, and imagination. We address each theme in turn, examining how they are represented in the data and evaluating how these elements foster the 'hands' and 'heart' aspects of connectivity and the broader principles of sustainability. We use Steiner's (1910/1929) concepts of Will and Action (the hands) and Love and Wisdom (the heart) to identify how these aspects work together to form a basis for a deep eco-consciousness. By avoiding hitting climate challenges 'head on', the experience of the natural world has less scope to induce eco-anxiety.

5.1. Seasonal Change and Festivals

One of the key areas in which pupils embed the concept of the rhythms of nature into their beings is through the framing of seasonal festivals. This is felt strongly in the kindergarten years and also continues throughout the main school (Observation notes). The changes of the year are highlighted and celebrated, starting in September with Michaelmas, the harvest festival. In kindergarten, children gather fruit, which they use to make jam in the classroom; this is shared with families and stored to use for snacks throughout the year. They sing songs of apples falling from the trees and gathering the harvest to prepare for the winter months. There is an appreciation of the abundance of this time of year and a recognition of which fruits and vegetables are in season (K-Observation notes). This is also celebrated in the main school with the collection of foods for the food bank and the Michaelmas festival, in which pupils also sing the story of St Michael, emphasising courage and community (C1-Observation notes). One can observe the love

with which the kindergarten children proudly serve their jam to parents at the festival (K-Observation notes).

Then in November the whole school celebrates Martinmas. Pupils and their families gather to do a lantern walk after dark. The children carry handmade lanterns and sing songs about their little lanterns lighting their way through the darkness of the winter months—a metaphor for maintaining light in their hearts (K-Observation notes). The main school children gather after the walk around a fire with teachers and parents and sing the story of St Martin, which captures ideas of compassion and charity (C1-Observation notes). This festival marks the drawing in of the nights and colder feeling of the winter months. They also learn about Diwali at this time of year (K-Observation notes).

The festival of Advent is marked at the beginning of December with an Advent spiral ceremony, in which children walk around the spiral, quietly and meditatively, as one might walk a labyrinth, carrying a candle that is placed within the spiral. There is a clear sense of reverence to the festival, with children solemnly and purposefully walking with their candle and placing it carefully in the spiral of greenery. Parents and teachers attend the event and sing Christmas carols. The school community also organises a large advent fair, open to the public, with activities such as making *Gnommie* gardens from foliage from the gardens with air-drying clay, candle dipping with bee's wax and wreath making, as well as stalls and puppet shows and a grotto filled with intricately crafted fairy scenes. Christmas is then celebrated at the end of term with a whole school festival with performances from each class (Observation notes). Kindergarten children perform a circle time version of the nativity play, singing with their teachers, with parents invited to watch and share food with the class (K-Observation notes).

In early February the school celebrates Candlemas, this has clear roots in the festival of *Imbolc*, welcoming back life and light after the darkness of winter. The younger children make models of snowdrops out of felt and there is a focus on these brave flowers signalling the stirring of spring. Candles are set in the earth and lit by the children. On the day of the festival, parents, teachers and pupils arrive at school at 7 a.m. and gather around the lighting of the candles. The school choir sings songs that mark the feeling of the festival and the gathering of light (Observation notes). They sing songs about the tentative arrival of light, parents sing Morning has Broken, then the pupils sing the following song in a round:

The smallest candle can be seen brightly burning

Through deepest darkness, see the light is returning,

The smallest act of kindness can bring both joy and light

And if we work together, we can lighten up the night

There is a reminder that the light returns gradually and that we feel this change of the seasons within ourselves (Observation notes). Again, the sense of reverence from the children as they sing this song highlights the stirring of the beginning of the ontological shift in their consciousness as they connect with this pivotal moment in the changing of the seasons (C1-Observation notes). The children then eat breakfast together in their classrooms and the parents meet in the school hall to share breakfast together; this begins with a blessing on the food and a demonstration of gratitude to Mother Earth (Observation notes).

They celebrate Shrove Tuesday in late February, particularly in kindergarten, where they make pancakes together, and in the main school they also learn about Ramadam, through stories (C1-Observation notes). Easter is celebrated in March through a whole school festival with performances from each class. Kindergarten children have a wooden Easter egg hunt and sing songs together (K-Observation notes). There is a celebration of the fruits of spring and a gratitude for the gifts of nature.

The summer term contains three key festivals, May Day, Whitsun and St Johns. May Day is celebrated through May Pole dancing. Each class dances round the May Pole to live music, provided by the school folk band made up of staff, pupils and parents. The dances become increasingly complicated as the children get older. This collaborative dance creates a visual weaving of the ribbons around the central pole (C5-Observation notes). There is a tangible sense of joy and collaboration in this activity, with children of all ages skipping around the May Pole, engrossed in their dance (Observation notes). The community organises another large fair, with fairy gardens, made from shells, flowers and plants, and an array of musical performances from the community, along with food, cakes, cafes, stalls and candle dipping, puppet shows and May Pole dancing.

Whitsun is celebrated as a moment of peace; children dress in white, and white paper doves, made by the children, adorn the school while the children sing songs of peace in many languages in a harmonious round (C1&5-Observation notes). The sense of reverence with the school sitting all together, singing different lyrics in a perfect harmony creates a profound physical sensation, bringing the community together. This celebration does not have an exclusively religious underpinning, rather it is seen as a time to recognise the 'in-breathing' of the spirit of the natural world as summer approaches.

Finally, the school celebrates midsummer through the festival of St John. Astronomically, St. John's Tide (June 24th) follows the summer solstice. In Waldorf pedagogy, this period is described as Earth's 'outbreath'. Traditionally Steiner schools celebrate St John's with a bonfire, children jump over the fire, representing a very clear physical action that carries deep symbolic weight. In recent years the fire is represented by a flame-coloured rope, for safety (Observation notes). The meaning behind the ceremony remains, with an emphasis on cleansing and renewal, just as you might prune a plant to encourage stronger growth. It represents leaving behind past mistakes or negativity and tuning into the inner feelings of the heart.

Through marking the seasonal change in this way, feeling the rhythms of nature and breathing in and out with Mother Earth, the pedagogy allows the pupils to appreciate the different seasons and the different energies they bring. There is a clear focus here on the doing and the feeling (hands and heart), with the sense of wonder, reverence and love present throughout the celebrations. The deep symbolic relevance of most of the festivals is not discussed with pupils in a knowledge-based way, particularly for the younger primary-aged children, allowing for the feelings of love and awe for the natural world to gently take form. It clearly creates a symbiotic acquaintance with nature that enables the pupils to feel into their place in the natural world without over analysing this cognitively. This reflection of the seasons in school is carried into the classrooms through the nature tables, which we discuss next.

5.2. Nature Tables and Natural Materials

Nature tables are a common part of the Steiner school classroom, at least through the kindergarten and lower school (primary) years (C1–5-Observation notes), though, even in the older years of main school, there is still evidence of plants inside all the classrooms, with an average of 15 house plants adorning all the classrooms (C8-Observation notes). The nature tables bring the elements of the seasons inside; the colours reflect the seasons outside, acting as a physical aesthetic bridge between the classroom and the landscape. By bringing the 'outside in', these tables provide a focus for contemplation, allowing children to engage with the natural world through observation, sensory interaction, and reverence. The examples observed demonstrate this. In the first term, there is autumnal focus on harvest, with deep earth-toned silks, pumpkins and fallen leaves, acorns and conkers, followed by winter themes of stillness and protection, with white and blue silks,

crystals, and evergreen branches. The spring term starts with snowdrops as Candlemas approaches, followed by tables that evidence the time of eruption in nature, with bright greens, yellows, lots of colourful daffodils, crocuses and blossoms. In summer the tables glow red and gold, reflecting the sun's intensity, with sunflowers and blooms of many colours (K,C1–5-Observation notes).

Through the 'heart' and 'hands', the nature table transforms abstract environmental concepts into tangible experiences. Children are encouraged to gather, arrange, and handle materials—acorns, stones, pinecones, or blossoms—which fosters a tactile connection to local ecology. This practice grounds the child in their specific locality, reinforcing their relationship with the natural world.

The holistic integration of nature is further reflected in the deliberate use of natural materials, a practice that prioritises sensory integrity over synthetic uniformity. This is most evident in kindergarten, where wood, wool, felt, and pinecones serve as the primary tools for play, construction, and crafting (K-Observation notes). These organic materials do more than occupy the hands; they foster an intuitive connectivity by providing a direct unmediated link to the source of the material. This emphasis persists throughout the school's progression. In Class 8, for instance, pupils engage with specific paper grains tailored for watercolours or chalks, developing a refined sensitivity to how natural fibres interact with a medium (C8-Observation notes). Furthermore, the use of clay in main school allows students to model their way into a deeper understanding of animal forms and human anatomy, using the earth itself to conceptualise biological structures (C4&C8-Observation notes). Similarly, in handwork, the consistent use of wool and felt to create everything from dolls and animals to complex garments ensures that the student's creative output remains tethered to the natural world. The use of beeswax for candle dipping from kindergarten onwards also cultivates the reverence of the natural world (Observation notes). The enthusiasm and care with which the children participate in manual activities such as handwork, and the pride they take in their creations, evidences the will-based engagement that helps support the development of their connection to nature (K&C1 Observations notes).

5.3. Learning and Playing Outside

In Steiner Waldorf Education, the boundary between the classroom and the natural world is intentionally porous. Learning and playing outdoors are not treated as a break from the curriculum but as the curriculum itself. Learning through play and learning outside are featured throughout the school. The commitment to outdoor engagement is most visible in the kindergarten, where the 'hands' are engaged through total sensory immersion. Children spend a significant portion of their day outside, regardless of weather, moving beyond the walls of the classroom to encounter the world directly (K-Observation notes). Here, play is a purposeful interaction with the elements; building dens, climbing, and exploring the undergrowth are not merely physical exercises but the earliest stages of establishing a sense of place and a physical belonging within the natural world. The children go out for regular walks; they are able to identify the elderflower as it comes into season, ready for making cordial, and they notice the changes in the flora (K-Observations notes). This lays the foundations for grounding the child's identity within the local ecology.

As students move into the main school, this outdoor engagement continues, with regular nature walks, allotment visits and outdoor classrooms (C1,C2,C3,C7-Observation notes). For example, in Class 1 pupils go out one afternoon every week, walking through the allotments and local woodland, with a time for silent listening, to 'hear what nature is saying to them' (C1-Observation notes), and an extended time for free play, allowing them to really 'be' with nature. Children are able to explore the environment, collect moss,

make fairy houses or bug hotels with independence and freedom (C1-Observation notes). When they collect items from the forest they are told to 'only take what they need' and encouraged to say thank you to the plants before they pick a flower or blossom. Through walking the same route on a regular basis, the children witness the micro-changes in the local landscape—for example the excitement when the blossom first emerged on the trees in March (C1-Observation notes). This allows for a sense of wonder at the beauty of the natural world and a respect for its fruits. This same joy of nature is also seen in the older children, who regularly work in the allotment as part of their gardening lesson. The core curriculum for Classes 5 to 8 includes gardening lessons, involving tasks from building patios to sowing seeds and harvesting vegetables, setting wild meadows and creating bug hotels (C6&7-Observation notes). They can take a lead in planning the work and learning about the issues that impact their ideas for growing. For example, in Class 5 they discussed the use of pesticides and how this impacts bee populations within the context of pollination (C5-Observation notes). The pupils engage in the physical activity and delight in the 'treat' of being allowed to play in the woods as a reward for hard work, climbing trees and running through the forest paths with a zeal much like their younger counterparts (C7-Observation notes).

There are many points at which the curriculum specifically requires a consideration of nature, such as in Class 3 where pupils engage deeply with farming (C3-Observation notes). They plant their own vegetables and learn about the realities of running a farm, with a residential school trip that allows them to see this first hand. The farming block often involves working on the school's allotment (C3-Observation notes). It teaches that the natural world is a subject that requires care, time, and respect to yield its fruits.

In Class 5 the intuitive connection is met with a burgeoning intellectual curiosity. In the botany main lesson, pupils move from doing to observing with precision, studying the plant kingdom in its diverse forms through both artistic rendering and scientific observation. Of particular note is the tree project the students work on throughout the year, where ongoing observation of the lifecycle of a specific tree of their choice facilitates an opportunity to imagine the world from the tree's perspective. They write their tree's story, and present this to the class in the tree's voice. The insights they provide through this exercise demonstrate a deep consideration of how the world might look and feel for the tree. They read their stories to the class from the voice of their tree; one noted 'my branches dance in the wind' and 'I enjoy the long summer days', while another considered how we must seem to a tree, referring to us as the 'two-legged creatures' that move around in the 'silver boxes' (cars). Some stories spoke of how the tree felt, both physically and emotionally, and noted that 'I am no different to you'. There were poems written about the trees as well as scientific observation notes, and one pupil had composed music on the harp representing the feeling of the tree through the four seasons (C5-Observation notes).

Throughout the school years, the pupils have access to the school allotment; this is a place where they can dig and sow, tend and harvest, in a setting that encourages care and responsibility. Older pupils are given specific projects to work on, taking ownership of the design of a patio area around some raised beds or planting vegetables and tending to them; they take pride in their work (C7-Observation notes). This is a site for outdoor lessons, which are a feature of the curriculum for all year groups. There is also an outdoor classroom, where timetabled subjects take place in an open-air setting, surrounded by trees and plants. This commitment to outdoor learning is fundamental to the school ethos.

5.4. Subjectifying Nature and Reverence to Mother Earth

There are many examples of practices that encourage a reverence to nature. Children are encouraged to sit at the beginning of lessons in the outdoor classroom to listen to the

sounds of nature (C2&7-Observation notes) or find a place on their walks to feel grounded in nature (C1&2-Observation notes). They are asked to find different objects in the outdoor classroom and reflect on their relationship to them (C2-Observation notes). These practices embed a meditative relationship to nature that draws attention to local environment.

Another key part of the Steiner school is singing, particularly in the younger years, and the opportunities to sing and perform continue right through to the upper school. In the younger years, the songs and verses often resonate with the passing of the seasons, the festivals and a reverence to Mother Earth. One of the key features of this is the subjectification of nature, where trees, flowers and seeds feature in songs sung from their perspective or as a being within the story. This creates an opportunity for seeing the world from the perspective of non-human beings. The children ask the snowdrops how they prepare for the spring, or the dandelions how it feels to wait in the grass for the children to blow their white hair away. The songs mark the process of the seeds sprouting up to the sunlight to see the 'wonderful world' outside (K&C1-Observation notes). The sense of wonder and care this creates in the children can be seen in their interactions with the bugs or flowers they come across in their play (K&C1-Observation notes).

This combines with verses that personify the elements, fostering a heart-felt connection to Mother Earth, transforming the natural world from an object of study into a family of living relations. The subjectification of nature is perhaps most vividly expressed in the daily verses and songs that punctuate the school day. In songs such as 'Mother Earth, Mother Earth, take our seed and give it birth' (C1-Observation notes), the natural elements are not described as biological variables but are addressed as kin—Mother Earth, Father Sun, Sister Rain, and Brother Wind. These features are also present in the gardening lesson verse (C7-Observation notes). This linguistic framework works against the *othering* of nature, and it moves beyond anthropomorphism; it serves as a specific pedagogical function of fostering a heart connectedness that views the environment as a community of subjects. By personifying the Earth, the Sun, the Rain, and the Wind, the curriculum encourages an empathetic relationship with the ecosystem, embedding a worldview with precepts of reciprocity and reverence rather than dominion.

The other place where reverence makes a clear connection to Mother Earth is through the blessings the children say before eating. These verses all bless the elements of nature, from blossoms, leaves and roots, to the rain and sun; they express gratitude for the birds, bees and flowers and wish for love, joy and peace in thanks for the nourishment the Earth offers (Observation notes). Here the origin of the food is recognised. This resonates with the indigenous worldviews that place great emphasis on reciprocity with nature and a focus on taking only what is required. The verses express deep heart-felt thanks for the fruits of nature that feed and serve humanity. All school meals are home made with fresh vegetarian ingredients.

5.5. Consciousness, Creativity and Imagination

A central finding of this ethnographic study is that connectivity with nature is cultivated not only through external physical contact but through the internal development of consciousness, creativity, and imagination. In Steiner Waldorf Education, these faculties are viewed as primary cognitive tools that bridge the gap between the human self and the natural world. This process begins with the imaginative foundation of the kindergarten years, where the curriculum centres on open-ended play. By interacting with natural objects—a log that becomes a boat or a stone that becomes a treasure—the child's imagination is tasked with completing the object (K-Observation notes). The children can be seen to express wonder as the wheat seeds spout or the crocus bulbs shoot up; they form attachments to their pinecones and their special shells (K-Observation notes). This early

habit of mind fosters a participatory relationship with the environment, moving away from a rigid consumerist view of 'things' toward a consciousness of the living potential within all natural forms. It also gives time and space for the development of imagination, something that can otherwise get crowded out when formal learning begins at age four, as it does in the UK State school system.

As students progress into the main school, creativity remains integrated into every subject through project-based learning. Art and music are methods used to investigate and understand the world, as evidenced in the study of human anatomy in Class 8, for example. Pupils do not merely memorise diagrams of the skeletal system. Instead, they observe the skeleton with reverence and develop a refined sensitivity to biological form by drawing skeletons in pencil and physically modelling the intricate bones of the human foot in clay (C8-Observation notes). By shaping the earth itself into the likeness of a biological structure, the student experiences the subject in a deeper way. They also draw the internal structure of the bone, noting its three-fold nature (the dense compact bone on the outside, the spongy bone inside, and the inner bone marrow), which reflects the relationship to the three-form human (body, soul and spirit) (C8-Observation notes). This artistic immersion allows the student to encounter the natural world as something inherently structured and beautiful, fostering a consciousness that is deeply respectful of the wisdom manifested in organic forms.

Ultimately, this creative approach provides a robust alternative to the eco-anxiety often generated by purely data-driven environmental education. By focusing on the 'heart' through music and the 'hands' through artistic production, the curriculum cultivates an eco-consciousness that has the potential to serve as a protective layer against the paralysis of climate dread. When a pupil has spent their childhood addressing the elements in verse and their adolescence observing, inquiring and modelling the world, the protection of the environment becomes a more embedded moral imperative. In this context, morality is not an external set of rules to be followed but an internal disposition formed through creative engagement.

6. Discussion: From Information to Intimacy

The evidence presented in this study suggests that Steiner Waldorf Education (SWE) offers a robust lived alternative to the dominant paradigms of environmental education. While mainstream approaches often rely on the 'head' to process data regarding ecological collapse—a method frequently linked to eco-anxiety and paralysis (Pihkala, 2020)—the Steiner model prioritises a 'hands' and 'heart' foundation. The transition observed in the curriculum—from the imaginative play of kindergarten to the precise scientific rendering of the Class 5 botany project and Class 8 anatomy modelling—demonstrates a sophisticated pedagogical arc. The 'head' is not ignored; rather, it is introduced only once the 'heart' has already fallen in love with the world it is asked to study. This sequence ensures that scientific inquiry is grounded in reverence rather than detachment.

The data illustrates that nature connectivity in SWE is not a separate subject or short-term intervention but an ethos that permeates all school life. This fosters the development of will and action for nature, informed by love and wisdom, and complemented by an age-appropriate introduction of knowledge. The seasonal festivals and nature tables provide a rhythmic emotional anchor, while farming, gardening, and natural materials provide a tactile will-based engagement. This leads to a deep connection to nature, the importance of which is well-documented in the findings of Chawla (2007) and Nord et al. (1998), who emphasise that appreciative childhood immersion in nature is the single most significant predictor of adult pro-environmental behaviour.

Importantly, the approach reported here provides an alternative to Western Dualism. By addressing the natural world through the subjectification of elements and plants, the school fosters a worldview that mirrors indigenous epistemologies. This challenges the Western stewardship model, which, even in its most well-meaning forms, maintains a hierarchy of humans over nature. In the Steiner context, the pupil is not taught to be a protector of an objective *other* but a participant in a living family. This ontological shift from 'nature as object' to 'nature as subject' is the fundamental requirement for true sustainability.

7. Conclusions

This research concludes that, to address the climate crisis and the growing epidemic of eco-anxiety, we must look beyond isolated interventions and projects. The Steiner Waldorf model suggests that a school's ethos must be tethered to the natural world, thus generating more of an eco-consciousness. By fostering a connectivity that is physically, emotionally, and spiritually grounded, we enable young people to find balance and care in their relationship to the Earth.

This emphasis on the Earth as a subject to be respected and interacted with leads to a suggestion that, in order to pursue environmental sustainability, we should be educating both for and with Mother Earth. This draws on the wisdom of indigenous worldviews to describe a pedagogy that embraces a spiritual and personal interaction with the environment. Through a holistic approach that foregrounds the hands and heart, SWE has the potential to cultivate a formative connectivity that precedes and supports later intellectual understanding. This framework encompasses both education *for* Mother Earth—emphasising awareness and the will to promote protective action—and education *with* Mother Earth—through love and wisdom, recognising a reciprocal kinship, and that humanity does not exist above nature but within it. Education for and with Mother Earth signifies a shift from an objective detached study of the environment to a subjective relational engagement with a living entity. While frameworks like Education for Environmental Sustainability (EES) or Education for Sustainable Development (ESD) are vital for systemic understanding, they often operate within a Western dualistic paradigm that positions nature as a resource to be managed or a problem to be solved. By contrast, when we draw on indigenous and holistic epistemologies, which acknowledge the elements of the natural world as sentient subjects rather than inanimate objects, we move education into a deeper relationship with Mother Earth. This allows for the development of a biocentric identity where morality is not derived from fear of climate collapse (eco-anxiety) but from a foundational sense of kinship and reverence (eco-consciousness). Ultimately, this framework suggests that true sustainability is relational and should be rooted in a lifelong dialogue with the living world.

Ultimately, the educational approach in SWE reported here puts the emphasis on flourishing. When connectivity is planted as a seed in the early years through song and play, it grows into an internalised morality. The pupils therefore have a true potential to go further than simply learning about sustainability; they learn to become sustainable in their very being, possessing the resilience and heart-centred consciousness required to face the environmental challenges of the 21st century.

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Abbreviations

The following abbreviations are used in this manuscript:

UNESCO	United Nations Education Science and Cultural Organization
SDG	Sustainable Development Goals
SWE	Steiner Waldorf Education
EE	Environmental Education
ESD	Education for Sustainable Development
EES	Education for Environmental Sustainability
CNS	Connectedness to Nature Scale

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