

Article

Eco-Capabilities: Arts-in-Nature for Supporting Nature Visibilisation and Wellbeing in Children

Nicola Walshe ^{1,*}, Joy Perry ¹ and Zoe Moula ² ¹ Institute of Education, University College London, London WC1H 0AL, UK; j.perry@ucl.ac.uk² Department of Care in Long Term Conditions, Florence Nightingale Faculty of Nursing, Midwifery & Palliative Care, Kings College London, London SE1 8WA, UK; zoe.moula@kcl.ac.uk

* Correspondence: n.walshe@ucl.ac.uk

Abstract: Estimates of mental health disorders and poor wellbeing among children and young people in England are escalating. While maintaining a positive relationship with nature is thought to promote personal and collective wellbeing, children and young people are spending less time outdoors, exhibiting a lack of appreciation for the environment and degrees of ‘plant blindness’. As such, there is a pressing need on behalf of schools to address these issues, and to adapt to students’ needs for a deeper and more purposeful connection with nature. This study aimed to explore the potential of one avenue to achieving this: arts-in-nature practice. This involved utilising arts-based research methods, through which 97 children aged 7–10 drew their ‘happy place’, alongside participatory observations, and interviews and focus groups with artists and teachers, as part of the wider Eco-Capabilities project. Findings suggest that following the arts-in-nature sessions there was a significant increase in the number of children’s drawings which featured nature as a main focus. This was achieved in three ways: by drawing newfound attention to nature; by attributing increased value to nature; and by explicitly placing nature within the purview of wellbeing. As such, we argue that creative pedagogies outdoors likely enhance what we term ‘nature visibilisation’ in children, an outcome necessary for their personal wellbeing and sustainability of the environment. This has significant implications for school practice in relation to how to support children’s mental health and wellbeing, alongside boosting interest in environmental sustainability and pro-environmental behaviour.



Citation: Walshe, N.; Perry, J.; Moula, Z. Eco-Capabilities: Arts-in-Nature for Supporting Nature Visibilisation and Wellbeing in Children. *Sustainability* **2023**, *15*, 12290. <https://doi.org/10.3390/su151612290>

Academic Editor: Fanli Jia

Received: 30 June 2023

Revised: 29 July 2023

Accepted: 8 August 2023

Published: 11 August 2023



Copyright: © 2023 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

Keywords: nature visibilisation; eco-capabilities; environmental sustainability education; wellbeing; arts; nature; plant blindness

1. Introduction

Concern for the mental health and wellbeing of children and young people in England is understandably increasing [1]. Rates of mental health disorders among this demographic and in the whole of the UK have risen sharply from one in nine (12.1%) in 2017 to one in six (16.7%) in 2020 [2]; this trend has been echoed across other ‘western’ societies, including Australia [3], the United States [4], and the European Union [5]. In these circumstances, UK support services, such as the Child and Adolescent Mental Health Services (CAMHS), have been forced to turn away up to 54% of referrals [6], placing vulnerable persons at risk. To combat this substantial issue, schools are now expected to provide heightened levels of support for their students’ subjective senses of wellbeing, yet commonly possess little training or support to do so [7]. This has generated a demand for identifying and establishing schooling processes which not only serve to prevent mental illnesses, but also empower children and young people to thrive in their present and future lives.

Though evidence suggests clearly that contact with nature has considerable benefits for wellbeing [8–10], the number of children in the UK who regularly play outdoors has drastically decreased by 90% since the 1970s [11]; following the COVID-19 pandemic, 60% in England alone were found to be spending less time in nature [12]. This has contributed

to the notion that children and young people are increasingly disconnected from the natural environment [13,14], struggling to perceive its worth and, subsequently, demonstrating a lack of care for its protection. This is a phenomenon that has often been applied to human behaviour and attitudes towards plants, referenced in recent decades as ‘plant blindness’ [15], and jeopardising important educational sustainability objectives. Schools’ central role in developing students’ competencies for addressing contemporary environmental challenges, such as climate change, is a matter of mounting urgency, while the nature of these topics necessitates collective participation and learning transformation. Fortunately, nature-noticing activities have been found to promote pro-nature conservation behaviour, in addition to nature connectedness of participants [16]. Measures to rectify children’s weakened associations with nature with respect to their wellbeing, and the betterment of the planet, thus warrant interrogation. And while the benefits of engagement with nature have been demonstrated beyond subjective assessments of wellbeing, including measurable improvements in children’s development [17], academic engagement [18], and social, emotional, and behavioural traits [19], time committed to outdoor learning in schools is being marginalised within the confines of an increasingly crowded curriculum. The consequential de-skilling of teachers in outdoor learning pedagogies [20] has thereby lessened the likelihood that children will be granted opportunities to interact with the outdoors as part of their habitual schooling activity.

Having weighed the matters above, we recommend in this paper possible remedies by means of artistic practice outdoors, or ‘arts-in-nature’ learning experiences. We use the term ‘nature visibilisation’ to encapsulate the influential factors to children establishing a closer relationship with nature (and hence, their wellbeing) and re-examine significant outcomes of the Eco-Capabilities research project. Although we are not purporting to establish a new theory or term to replace ‘plant blindness’, it is important that we have established workable terminology to build a constructive discussion upon. While nature visibilisation is used here as a new description, the ideas on which it rests stem from a collection of interdisciplinary work on arts, nature, and wellbeing (e.g., [21–28]). We draw from this study and others to suggest that the embodied approach of creative activities provides a particularly powerful way for children to connect physically and emotionally with nature [29,30]. We are primarily inspired by Moula et al.’s [31] systematic review of arts-in-nature interventions delivered to over 600 children and young people across five countries. This large-scale study found evidence that arts-in-nature can: (a) provide multi-sensory stimuli for children to connect with nature, understand environmental issues, and explore ways to prevent environmental disasters, thereby addressing eco-anxiety; (b) engage children who might be disinterested about environmental issues, disengaged with educational programmes, or feel excluded from existing programmes; and (c) enhance social connectedness, and structural and social capital, thereby reducing health inequities. In this paper, we frame such evidence around a new theory of nature visibilisation, which we define as being how a new and meaningful appreciation for one’s natural environment and the life which inhabits it is enhanced.

Given the potential for creative practice to cement positive relationships between children and nature, an outcome on which their individual and planetary wellbeing depend on, an overarching aim was to consider whether arts-in-nature activities have the potential to promote nature visibilisation and understand the processes through which this might transpire.

2. Literature Review

2.1. Wellbeing and Its Associations

While conceptions of mental health and wellbeing vary across the academic literature, most notably between philosophical and psychological perspectives, we assume for our purposes a generally sociological approach to understanding these topics; that is, we adhere to theories of wellbeing which bridge objective life circumstances (e.g., physical health and socio-economic status) with subjective evaluations of those circumstances (e.g., judgements and emotions) [32,33]. When a person exhibits good wellbeing, they are sometimes referred

to as ‘flourishing’, language which reflects an eudaimonic (pursuit of what is meaningful), as opposed to hedonic (pursuit of pleasurable experiences), viewpoint on happiness and living well [34]. In other words, when speaking about wellbeing, we mean more than a life of pleasure alone, but primarily that which begets deep-seated meaning and self-actualisation [35]. Similar to Sen [36], we are interested in wellbeing within the context of opportunity and which life experiences enhance capabilities for achievement, propelling a person to flourish in their circumstances. Meanwhile, mental health can be distinguished as an important and objective component to wellbeing; though the two concepts overlap in significant ways, they are not interchangeable [37,38]. We recognise the role mental health plays in painting a broader picture of wellbeing but chose here to focus more exclusively on its subjective features. As De Ruyter [39] argued, schools too often abide by an ‘ideal conception of flourishing’ and harness their resources towards that which can only be tangibly measured (p. 94). De Ruyter maintained that more energy should be afforded to deciphering children’s subjective experiences in school, which can better inform pedagogical expectations and practices. Using interviews, observations, and art illustrations, we analysed how individuals interpret wellbeing for themselves, and how this evolves by means of nature visibilisation. And while this is neither the forum to further deconstruct nor test theories of wellbeing, it is important that we have established workable definitions of its terminology from which a constructive discussion can build. We have therefore selected the above authors’ work to guide our understanding, leaving open the possibility for debate.

2.2. The Issue of Plant Blindness and Enhancing Appreciation for Nature

In recent decades, academic and research communities have explored humans’ tendency to underestimate the significance of plants to life on Earth and its varied ecosystems. This phenomenon is commonly referred to as ‘plant blindness’, originally coined by Wandersee and Schussler [15] to describe one’s inability to appreciate plants in their environment, either for their aesthetic or biological characteristics. This failure to notice plants, and the indifference towards plants also involves ‘the misguided, anthropocentric ranking of plants as inferior to animals, leading to the erroneous conclusion that they are unworthy of human consideration’ (no pagination). Such a discrepancy between how individuals situate plants and animals within their life worlds is evident in the attention they pay to their visual surroundings, whether they display positive attitudes towards plants, and their understanding of plants’ importance to the biosphere [40]. From a sustainability perspective, overcoming these biases is essential to fostering a necessary relationship between humans and nature: one of conservation, biodiversity, and harmony, thereby linking plant blindness with the Sustainable Development Goals (SDGs) [41].

It is worth noting that the word ‘blindness’ to describe individuals’ diminished recognition of plants is arguably insensitive towards the disabled community and ableist in its language [42]. The phenomenon in question does not represent an *inability* to sympathise with the plant world; it captures a *degree to which* humans evaluate plants as living, worthy things. This would imply that a scope of ‘plant blindness’ can be improved upon, and that this is a matter of both individual and societal reframing in how we understand the natural world around us. While this phrasing is not intended to be derogatory or insinuate that there is some abnormality to be ‘cured’, the issue of drawing comparisons to disabled groups is rightfully concerning. Though there have been some proposed alternatives, such as ‘plant awareness disparity’ (PAD) [40], none have taken hold in the literature or are commonly referenced. Without deciphering a new name for this phenomenon, we will add to this conversation to suggest that a more suitable description would likely signify the promising value of enhancing our capacities for plant appreciation, in this case through education. In the meantime, we acknowledge the imperfect nature of this phrasing and will, for the purposes of this paper, adhere to Wandersee and Schussler’s conception of plant blindness as strictly figurative.

Evidence for plant blindness has been demonstrated across a range of disciplines concerned with the human–plant relationship, with several studies attributing the phenomenon (also referred to as zoocentrism) to our evolutionary makeup. The extent to which we visually process our surroundings depends, in part, on our biological needs and motivations [43], and we are hardwired to focus more on animals which pose a potential threat to our safety [44]. Our instinctive human abilities to visually detect and react to the distinctly animal kingdom thus overshadow our attention to and visual detection of plants; we consequently minimise them as a homogenous and idle green backdrop in our observations of nature [45]. In groups of secondary and university students, plant blindness has been presented in how these individuals preference the study of animals over plants [46,47] and can significantly better recall images of the former [48]. In young children, comprehensions of what constitutes as ‘living’ are at the start anthropocentric (i.e., centre around human beings) [49]; only by approximately 10 years of age does this notion begin to encompass animals and, eventually, plants [50].

However, in addition to the biological and cognitive determinants of plant blindness, there are important cultural factors to consider, such as the argument by Balding and Williams’ [51] in that this bias is not an inescapable human condition but can be alleviated in societies which, by virtue of their values and practices, enhance the human–plant relationship and develop individuals’ capacities for appreciating plant life. This would indicate that the issue of plant blindness is, in part, something we can exert authority over and work to alleviate. In the context of contemporary Western society, the predominant worldview of life on Earth places humans at the epicentre, with animals outranking plants [52]. This favouritism has been observed in its teachings of biology, for instance, which are disproportionately animal-focused or ‘zoochauvinist’ [53]. Though the research and teaching communities have long regarded environmental education as a remedy for addressing misconceptions and fostering positive attitudes [54], the schooling context is arguably insufficient for helping children to construct valuable knowledge about plants [55]. A recent study by Amprazis, Papadopoulou and Malandrakis [56] appears to support the suspicion that education is in fact one of the contributing factors to plant blindness, finding no correlation between students’ participation in environmental education projects and their preference for plants or ability to recall them as living organisms. But, while modernising the curriculum and approach to environmental education specifically is a worthwhile objective, it is also important to recognise how instilling an appreciation of plants also applies to less formal learning activities and other school subjects. Much of the discussion surrounding the effects of the educational framework on plant blindness focus heavily on knowledge transmission and improving scientific literacy; in essence, helping children to classify plants as living things [57–59]. But the idea of counteracting plant blindness is far more nuanced than merely understanding their biological makeup and functions. Addressing this problem involves promoting a deeper-seated connection with nature and enhancing student interest in plants. The relationship between these two topics is relevant, as individuals’ ability to recognise plants as ‘living’ is positively correlated with whether they also perceive plants positively [56]. Herein lies a critical connection between addressing the distinct issue of plant blindness and amplifying children’s appreciations of nature more broadly.

Environmental scholars have problematised a westernised conceptualisation of nature (e.g., [60]), in particular the human–nature binary, which has contributed to nature being seen as separate, exploitable, and unresponsive to human actions (e.g., [61]), and led to ‘ecological blindness’ along with the tendency to obscure anthropogenic environmental destruction [62]. In response, both practitioners and researchers have advocated for connections with the more-than-human to not only include plants and animals, but also non-living elements, such as water, sunshine, etc. The Eco-Capabilities project features various elements of the natural environment with which children developed meaningful relationships through arts-based experiences, particularly with plants and animals. With the hope that this study helps to inform methods of mitigating plant biases, we use the

term ‘nature visibilisation’ to explore how children thrive through creative adventuring outdoors and conceptualise the weight and wonder of the living world. Here, the term nature visibilisation refers to the emerging new and meaningful appreciation for one’s natural environment and the life which inhabits it. We are concerned, therefore, with children’s capacities which bring dimensions of nature forward in their consciousness, allowing them to be ‘seen’. Understanding how this occurs is beneficial for addressing: (a) ecological consequences of a frail human–nature relationship, particularly to the plant kingdom; and (b) implications for children’s individual wellbeing and development.

2.3. The Eco-Capabilities Project

The Eco-Capabilities project explored how undertaking arts-in-nature practice can support the wellbeing of children and young people, particularly those living in areas of high deprivation. It builds on Amartya Sen’s human capabilities as a proxy for wellbeing [36], developing the term eco-capabilities to describe how children define what they need to live a fully good human life through environmental sustainability, social justice, and future economic wellbeing [29]. Through the Eco-Capabilities project, we found that arts-in-nature practice contributed towards the development of eight eco-capabilities in children: autonomy; bodily integrity and safety; individuality; mental and emotional wellbeing; relationality: human/non-human relations; senses and imagination; and spirituality [29]. In particular, arts-in-nature practice appears to support the development of these eco-capabilities through four main pedagogical approaches:

“extended and repeated episodes of time undertaking arts outdoors, which allows children to feel comfortable with what becomes familiar unstructured routines; embodied practice which engages children affectively through the senses and helps them re-discover familiar outdoor spaces with a fresh sense of place; a sense of slowness which envelopes children with time and space to (re)connect with the more than human world; and thoughtful practice which facilitates and encourages emotional expression, in doing so giving them the tools with which they can develop resilience against broader worry and anxiety.” [29] (p. 19)

Through these four approaches, undertaking arts-in-nature helps children to engage both physically and emotionally with nature and, in doing so, develop a sense of themselves being part of it (as opposed to being separate from it). However, the process by which this took place, particularly in supporting children’s understanding of the relationship between nature and their own wellbeing, is unclear. This paper draws from the original data to explore the following research questions:

RQ1: To what extent did arts-in-nature activities support nature visibilisation for the children in relation to their wellbeing?

RQ2: By what processes did nature visibilisation take place through the arts-in-nature practice?

3. Research Design

3.1. Context

A total of 101 children in Years 3–5 (aged from seven to ten) from two primary schools in eastern England took part in the Eco-Capabilities project. This research deliberately focused on children living in areas of high deprivation, with both schools being in the fourth quartile IDACI (income deprivation affecting children index), which measures the proportion of all children aged from 0 to 15 living in income-deprived families. Within both schools, over 40% of children were registered for free school meals (the national average in 2018 was 13.6%), and both had above average percentages of children with English as an additional language (EAL) and special educational needs and disability (SEND). Research took place in the spring–summer seasons of 2021 following the third COVID-19 ‘lockdown’ in England, and the second significant period of moving to home learning for most pupils. In this way, children had recently spent a significant period of time away from school in which they were expected to undertake learning at home with little interaction with either their teacher or peers.

3.2. Arts-in-Nature Practice

Throughout the Eco-Capabilities project, artists from the arts and wellbeing charity Cambridge Curiosity and Imagination (CCI) spent eight full days of arts-in-nature practice (or *artscaping*) with children across eight consecutive weeks. Developed through creative collaborations among artists, professionals, schools, and families, artscaping practice encompasses three key principles: to affect and be affected by arts, nature, place, and space; to create a response from materials and feelings to express new ideas; and to enhance the environment in ways that delight [63]. Each of the artscaping days that were carried out through the Eco-Capabilities project comprised different activities.

Children were invited to observe art everywhere, such as in the colours of flowers or birdsongs, to collect natural objects or stimuli, and incorporate them into their artwork. Example activities included foliage-inspired collages, natural fabric printing, observational drawing, sculpturing, poetry, music making, story making, and performances. Artmaking took place in parallel with reflections and conversations that helped the children to feel part of the more-than-human world and understand emerging environmental issues, thereby promoting environmental awareness and sustainable behaviours [64]. Typically, children went outside with artists for the morning and engaged, in some way, with the outdoor space, for example lying on the ground with their eyes closed and drawing what they could hear, before undertaking more focused activities. During the afternoon, children more frequently worked in or close to the classroom to reflect on the colours, textures, patterns, and environments they had explored during the morning activities.

3.3. Methods of Data Collection

We used participatory and arts-based methodological approaches [65] which supported visual, rather than linguistic, thinking; these afforded children opportunities to decipher feelings that they might otherwise struggle to verbalise [66]. Arts-based methods in particular were a useful way for children to represent their experiences, thereby ensuring that their perspectives were being properly recognised and listened to [67].

Before and after the arts-in-nature interventions (pre-and-post), children undertook a workshop consisting of two key activities: children's drawings of happy places and walk-and-talk focus groups. For the drawings of happy places, children were invited to imagine a place where they feel happy, and then draw what it looks like. They were also asked to draw five things that were important to their happy place, and five things that they would rather keep away from it. In this way, we were using what children identify as making them happy as a proxy for what allows them to live well or flourish. In the walk-and-talk focus groups, we invited children to walk around the school grounds in groups of three or four to identify their most and least favourable spaces, spaces where they felt connected to and disconnected from, and spaces they associate with fear. As they walked, they were asked to explain the reasoning for their categorisations.

During the intervention, we undertook the following three methods:

1. **Participant observations and fieldnotes:** Researchers and teachers were participant observers in all the sessions; as such, they kept notes about interesting behaviours, interactions, or 'lightbulb' moments during which a particular change took place.
2. **Reflective focus groups:** At the end of each day, artists, teachers, and researchers spent time reflecting on their observations of the day and identifying any noticeable changes in children (and the reasons for them).
3. **Creative diaries:** Children's diaries, which included their artwork throughout all sessions, were also included in the data collection for any noticeable differences or changes in children's expressive artmaking.

Finally, at the end of the intervention, all artists, teachers, and head teachers were interviewed individually, followed by a focus group with all artists and teachers two months later.

3.4. Methods of Data Analysis

All reflections, focus groups, and interviews were transcribed and subsequently analysed using NVivo 14 Plus. Thematic analysis was performed both on verbal and visual data [68], which allowed us to reflect on how we were conceptualising the data and how this conceptualisation was evolving or growing, alongside a deeper understanding of the data. Two researchers undertook the process of data analysis individually with two review sessions, with the third researcher available to discuss and corroborate the categorisation of the data and to explicate the emerging themes. This iterative process of repeated discussions aimed to remove any personal bias, sensitivities, allegiances, and situated knowledge when drawing out findings, thereby increasing the validity of the study [69].

For the purposes of this paper, drawings were additionally analysed for the presence of nature, particularly whether they included either plants or animals, and whether this was a main feature of the drawing or in the background. Quantitative data was produced from this analysis as number of drawings which contained some representation of plant and/or animal life.

3.5. Ethical Considerations

This project followed BERA ethical guidelines [70] and was awarded ethical approval by the University Ethics Committee; this included specific approval to undertake face-to-face research within the context of the peri-pandemic [29]. Artist and teacher participants were given participant information sheets and consent forms to support their decision to participate; these described: the purpose of the study; the potential risks and benefits; information regarding anonymity, confidentiality, data protection, and storage; and the right to withdraw. Consent from parents/guardians of children participants was obtained in a similar way; information sessions were held in each school to explain the research, and we worked alongside teachers to support those for whom accessing written information was difficult. We obtained assent from children at the beginning of the project through workshops, as well as checking throughout the research period. Where consent/assent was not obtained, children were able to participate in the arts-in-nature activities, but data were not recorded in relation to them. We developed a distress protocol and risk assessment with schools to mitigate the wellbeing and safeguarding risks arising from children revealing personal or challenging emotions during either the discussions around wellbeing or the arts-in-nature practice; any concerns identified were raised with the designated safeguarding lead as per the schools' policies.

4. Results, Analysis and Discussion

In this section, we will first present the data in relation to the way in which arts-in-nature practice supported nature visibilisation for these children in relation to their wellbeing (RQ1). We will then explore the processes through which this took place (RQ2), before considering their implications for practice.

4.1. Nature Visibilisation as Evidenced in Children's Drawings

A total of 97 children completed drawings in the workshop before the arts-in-nature sessions (46 in school 1 and 51 in school 2, respectively); in contrast, 88 children completed drawings in the workshop after the arts-in-nature sessions (42 in school 1 and 46 in school 2, respectively). The number (and percentage) of drawings which contained plants and/or animals as either a main focus or in the background of the drawing are illustrated in Table 1 and Figure 1.

Table 1. Table showing the number (and percentage) of drawings which had plants and/or animals as either a main focus or in the background of the drawing.

Aspect of Drawing	Plant or Animal	PRE (%)	POST (%)
Main focus	Plant	4 (4.1)	21 (23.9)
	Animal	1 (1.0)	5 (5.7)
	Total	5 (5.2)	26 (29.5)
Background	Plant	22 (22.7)	21 (23.9)
	Animal	25 (25.8)	28 (31.8)
	Total	47 (48.5)	49 (55.7)

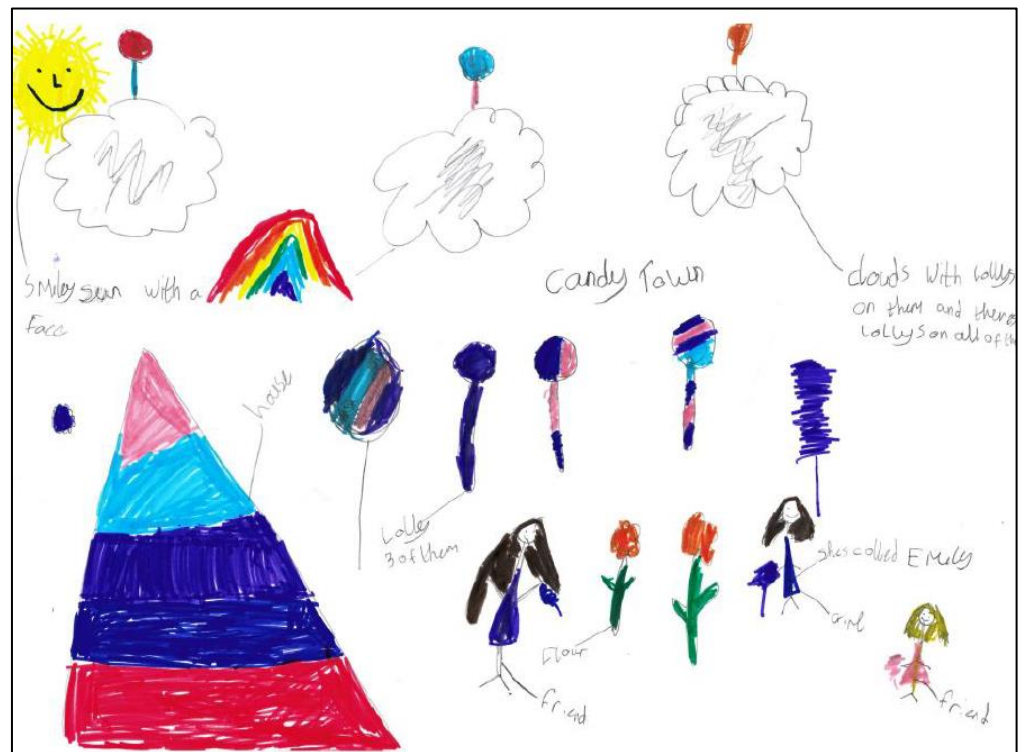


Figure 1. Divided bar charts showing the percentage of drawings which had plants and/or animals as either a main focus or in the background of the drawing. (a) Pre-intervention (prior to arts-in-nature practice). (b) Post-intervention (after the arts-in-nature practice).

Examples of plants that were commonly included were flowers or trees; illustrations of these in the background or as a main feature are shown in Figure 2a (Candy Town, which includes several flowers) and Figure 2b (a forest which contains a treehouse), respectively. Examples of animals frequently comprised pets (most commonly cats or dogs), but also included birds and insects, such as butterflies; illustrations of these in the background or as a main feature of a drawing are illustrated in Figure 3a (a bedroom scene which includes cats on the bed) and Figure 3b (a horse), respectively.

Before the arts-in-nature sessions, nature appeared as a main feature in just 5/97 (5.2%) of drawings; this comprised 4/97 for plant life and 1/97 for animals, respectively. At the same time point, nature appeared in the background of 47/97 (48.5%) drawings, comprising 22/97 with plant life (commonly trees) and 25/97 animals (most frequently cats or dogs as pets), respectively. Following the arts-in-nature sessions, there was a significant increase in the number of drawings which featured nature as a main focus, encompassing a total of 26/88 (29.5%) drawings; this comprised 21/88 (23.9%) for plants (an increase of 483%), and 5/88 (5.7%) for animals (an increase of 470%), respectively. After having undertaken the arts-in-nature practice, the number of drawings in which nature appeared in the background remained relatively stable, amounting a total of 49/88 (55.7%) drawings; this included 21/88 for plant life (a slight increase from 22.7% to 23.9%), and 28/88 for animals (an increase from 48.5% to 55.7%), respectively. As such, the arts-in-nature sessions appear to have had a significant impact on children's identification of plants as being

important within their 'happy place'; this suggests that this practice has served to make plants explicit in their role in children's wellbeing, as articulated by the children themselves.



(a)



(b)

Figure 2. Examples of children's drawings which were categorised as including plants: (a) in the background of the drawing (pre-intervention); and (b) as a main feature of the drawing (post-intervention). These drawings were developed by different children. (a) Pre-intervention. (b) Post-intervention.



(a)



(b)

Figure 3. Examples of children's drawings which were categorised as including animals: (a) in the background of the drawing (pre-intervention); and (b) as a main feature of the drawing (post-intervention). These drawings were developed by different children. (a) Pre-intervention. (b) Post-intervention.

4.2. Arts-in-Nature Practice for Supporting Nature Visibilisation

Analysis of children's drawings, alongside participant observation fieldnotes and transcripts from artist/teacher/researcher reflection sessions, suggests that arts-in-nature practice supports nature visibilisation in three ways: by drawing newfound attention to nature; by attributing increased value to nature; and by explicitly placing nature within the purview of wellbeing. These will be considered separately below, drawing on focus groups and interview data from teachers and artists, alongside participant observation and children's drawings of their happy places.

4.2.1. Drawing Newfound Attention to Nature

Throughout this project, the arts-in-nature practice drew newfound attention to nature, encouraging children to take notice of various life forms, both plant and animal, and appreciate their intricacies and beauty. Prior to the arts-in-nature sessions, the children's drawings of their happy place frequently focused on their everyday experience; at a time immediately post-COVID-19 lockdowns, this often depicted familiar bedroom spaces, and regularly included computers or references to online gaming and social media platforms, such as Fortnite and TikTok (as displayed in Figure 4).



Figure 4. A child's drawing (pre-intervention) representing children's everyday experience, particularly during lockdown, with reference to computers.

From the beginning of the arts-in-nature sessions, artists invited children to take notice of what they saw in nature. Their first sessions included relatively simple activities, such as observing the sky or the grass; for example, children described how it felt touching the grass, noticing that it can be 'spiky' and also 'soft'. In later sessions, artists encouraged children to focus more closely on the details of what they observed, such as colours, shapes, textures, or movements. For example, children were observing how some branches can be rough but others smooth, flowers which have different shapes and scents, and how trees have different textures based on their age. They were also keenly observing how many colour variations existed and tried to capture these with the aim of creating a group chart encompassing all the colours they had observed in nature. All colour variations were described in detail, such as 'rainbow leopard', 'turquoise ocean', 'dream snake pyramid', and 'evergreen elegance' (see Figure 5).

During the initial arts-in-nature sessions, it became clear that the practise of paying attention to, or identifying, detail in nature was unfamiliar to some children. For example, in a first session at one school, the artist asked children to find something small, such as a feather, a blade of grass, or a flower; one child asked, "What is a blade of grass?" (Researcher Fieldnotes). However, as the weeks progressed, they began to notice nature more intricately; one child explained "We found this leaf that looks like it has been in the fire as it is black lines look like nerves on a human body" (Researcher Fieldnotes). In addition, both teachers and artists took note of unprompted conversations between the children themselves during the arts-in-nature days:

“And they’re just looking at it and spending time kind of discussing, like, let’s look closely at this leaf. Let’s look closely at the flower pattern. What are the patterns? . . . Actually taking that time to have that in depth conversation that you wouldn’t . . . normally have about maybe about a tiny one little feather or one little leaf.” (end of day reflection, teacher)

These behaviours appeared to extend beyond the arts-in-nature days, with children coming into school talking about the nature they had noticed at home, for example: *“this morning I saw a moth”, “I saw a red butterfly”, and “my sister screamed really loudly because she saw a Daddy Longlegs”* (Researcher Fieldnotes). As such, the arts-in-nature practice encouraged children to engage with nature in an embodied way; they began to notice details that they could see, smell, hear, and touch, thereby providing them with fresh perspectives on that environment which foreground the presence of plants and animals.



Figure 5. The Colours of Shirleyfields palette. Photograph copyright: Nicola Walshe.

This newfound attention to nature stemmed from an increased and sustained contact to nature, a process which occurred naturally, and possibly unconsciously, through the arts [71]. The arts-based activities supported active engagement with nature, as opposed to passive engagement with nature, such as walking without noticing; this was a fundamental element that developed the human–nature relationship, as suggested by a recent meta-analysis [72]. There were also indications that children were gradually transitioning from an anthropocentric or human-centred worldview, which is based on the assumption that humans are the most important elements in the ecosystem who can ‘control’ nature [73,74], towards an eco-centric or nature-centred worldview, whereby humans are a part of nature and have the same value to all other living beings [75–77]. This shift towards a more

eco-centric worldview was evident in the activities described above, where children started to appreciate plants and animals as living beings with their own stories and histories, for example:

“He picked up a seed . . . He opened it up and he said, ‘Oh, there’s the petals in the middle’ . . . And then he said to me ‘It is just like a human being. It’s like a baby in the mommy’s tummy. And the tummy is protecting it and the leaves are protected. And then when it’s ready, it opens up and comes out.’ Wow. That to me was love.” (artist reflection).

This also contends with the current literature, which argues that addressing plant blindness involves enhancing children’s interest in plants and building their capacity to recognise plants as living beings [56].

4.2.2. Attributing Value or Worth to Nature

As they noticed nature, children began to attribute greater importance to plants and animals. This became apparent through an articulation of plants’ instrumental value, such as giving oxygen, but over the course of the project grew to include discussion of more intrinsic value—value for their own sake. In valuing nature, many then showed increased concern for nature’s protection or conservation, assuming a sense of personal and collective responsibility for its varied life forms.

Arts-in-nature sessions were carefully planned to allow for child-led activities; this meant that there was flexibility to follow the interests of the children piqued by changes in what became familiar outdoor spaces over the course of the project. For example, in one session, children found a dead bee and spontaneously proceeded with organising a funeral and memorial. During the funeral, many children pretended to cry to express their bereavement and created a ‘grave’ for the bee writing ‘Rest In Peace’, ‘VIB-Very Important Bee’, and ‘Fuzzy Buzzy—A friend to bees and humans’ (Figure 6). One artist reflected that as they were creating the memorial *“I heard a chanting behind me: ‘More flowers, more respect’”*. When children returned to the class, they searched on the internet to find more information about bees in their own time. One artist reflected:

“All of this focus of their emotions on this little bee was quite amazing. . . I think maybe [they felt] some empowerment from what they could do to save the bee, and fundraise for the bee, and look after the bee. Sometimes children, they’re connected to climate crisis. But that can feel so huge and overwhelming. And to be able to put it in into this little bee was just amazing.”



Figure 6. Funeral ceremony for Fuzzy Buzzy. Photograph copyright: Zoe Moula.

For some children, valuing nature was demonstrated more simply in what was noted as being an uncharacteristic focus and behaviour in relation to it. For example, one artist described the experience of a particular child with learning and behavioural difficulties who had refused to make any mark (writing, drawing, or otherwise) for the entire project:

“One of the last sessions he went outside in the garden, and he drew every single flower, and he put the name of every single flower, and the teacher had never seen him writing anything. That was amazing, to have a child being so excited. He was so excited about the plants, and the whole project that he started to write. I think that’s very big” (artist interview)

Almost all sessions involved exploring and reflecting on the history and life of plants or animals. As part of this, children had conversations around eco-systems and food chains, and ways that they could protect the survival of plants and animals, such as by making habitats for snails and stopping the cutting of grass or flowers. In one school, children received access to a field beyond a locked gate within the school for the duration of the project; as the weeks progressed, the grass grew around them and became an important part of the embodied arts-in-nature experience, ultimately reaching up to their waists. In the final week, the grass was unexpectedly cut; this was devastating to some of the children who articulated it as a violent act not only against the valued space that it had become, but also the nature within it.

Although this did not frequently transfer into children’s drawings, there were a small number who explicitly referenced protection of the environment and nature often through words, such as *“Don’t destroy nature”* (Figure 7).



Figure 7. A child’s drawing (post-intervention) expressing a wish to protect nature.

This wish to protect the environment became stronger as children started to see themselves as part of, rather than separate from, nature:

“I think they definitely started to get a real sense of how nature links with them. It’s not a separate thing. It’s not just a thing that’s going to be there forever, just for our amusement as such, they started to get a much closer connection with it. And I really liked the way a lot of them linked themselves with nature by the end as well” (teacher interview)

“One of the children said . . . about it being wild, and that it didn’t feel like they were going into nature, felt like they were nature because it was so wild, and they were being explored. And I loved that. But that reminder of wildness is really important, you know” (artist interview)

Such quotes illustrate that children’s eco-centric worldview was growing alongside an increased appreciation of the value of both animals and plants [51]. It also became clear that children were moving beyond nature contact, which involves simply being in natural spaces and developing a ‘physical contact’, towards nature connection, which involves ‘psychological connection’, bonding, and seeing themselves as part of nature [78]. As Richardson [79] argued, although there are important benefits associated with *contact* with nature, these benefits are limited to humans only. It is only through *connection* with nature that these benefits can be achieved for both humans and nature. This is why caring for the wellbeing of both humans and nature should be at the forefront of all conversations towards achieving a sustainable future.

4.2.3. Placing Nature within the Purview of Wellbeing

Finally, through the arts-in-nature practice, children began to recognise the value of nature in relation to their own wellbeing. For example, the “plethora of sensory information” that can be found in nature [77] (p. 65), such as natural objects, sounds, smells, or sights, acted as a source of inspiration, creativity, comfort, and calm. The importance of nature as a source of comfort and calm became explicit through certain activities, such as mindful drawing and mark making, in response to the sounds they observed in nature, mapping the movement of birds, or lying on the grass watching the sky. As some children said, *“I felt so relaxed I could feel the grass moving”*, *“I felt calm and relieved”* (researcher fieldnotes). This source of wellbeing was also derived from activities that facilitated children’s emotional expression, such as selecting colours in nature which they felt best represented their emotions. This sense of wellbeing was further rooted in activities that made nature explicit as a source of inspiration and creativity; for example, in children experimenting with drawing with the colours produced by grass and dandelions or creating hand tattoos inspired by nature. Children also kept a creative journal/diary which they updated during every session. This process of journal keeping was an opportunity for children to externalise their internal emotions and senses without necessarily needing to articulate them verbally, or to share them with the group.

During a particular session, children walked through a nearby trail which led to the ‘mosaic hill’, a hill covered with recycled crushed ceramic pieces which was created by the City Council ecology team. Each child picked a ceramic piece they found interesting and wanted to observe in detail; they examined their shapes and colours before producing drawings based on their selected pieces; one child later commented that *“Art is a poetic way to describe nature and things around you”*, themselves identifying the role of arts as a medium to promote connectedness to nature.

Several activities also suggested that, over time, children’s pro-environmental identities were growing (i.e., sensing that nature was becoming an important part of their identity [80]; as shown in Figure 8). For example, towards the end of the intervention, children were invited to create their own sculptures in nature. Both the teachers and artists observed that elements of their sculptures became a representation of their own self and their understanding of the natural world. This was also supported from children who said that:

“It felt like I was not a person... It felt like I was the nature.”

“Nature is a lot of people’s happy place—it is usually full of colours, you feel very free outside. Nature is a source of life. In nature you can find different colours and shades and it inspires you.” (children’s voices from researcher fieldnotes)

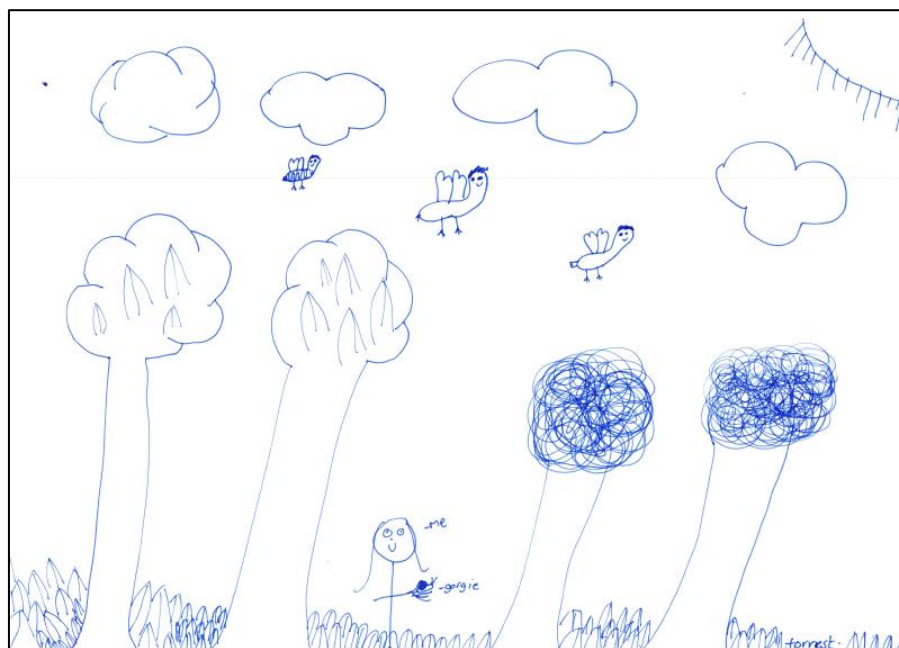


Figure 8. A child's drawing (post-intervention) potentially demonstrating the importance of nature for their wellbeing.

The importance of placing nature within the purview of wellbeing has been identified in a wealth of evidence. For example, current systematic reviews have found strong associations between nature connection and children's mental health and wellbeing [8–10] and their overall quality of life [81]. The most recent meta-analysis also found associations between one's personal connection to nature and reductions in depressive mood, anxiety, and negative affects [82]. Our recent systematic review, which focused specifically on arts-in-nature interventions for children and young people, found that all eight included studies provided evidence of a fundamental and positive impact on the person–nature relationship [31]. However, what has received scant attention in the existing literature, so far, is the reciprocal process of wellbeing, whereby healing in nature is also healing for nature [83]. While this paper has not explored this dimension in depth, we see opportunity for further research in this area, and strongly suspect that the benefits of children's improved relationship with nature are likely to include pro-environmental behaviours [16].

5. Conclusions

We suggest that arts-in-nature practice is essential to fostering children and young people's relationship with the environment. Hoping to inform the pedagogical methods of alleviating plant bias, we aimed to explore how arts-in-nature supported students' nature visibilisation, and the processes through which this took place. Such understanding is important for the prioritisation of children and young people's wellbeing and implementation of environmental sustainability frameworks in schools. Following eight full days of creative learning outdoors, we found a significant increase in the number of children's drawings which featured nature as either the main focus or in the background. As the children themselves articulated, the arts-in-nature practice had a significant impact on their identification of nature as being important within their 'happy place', as well as for their wellbeing. Transformative learning through enhanced 'nature visibilisation' occurred in three significant ways: by drawing newfound attention to nature; by attributing increased value to nature; and by explicitly placing nature within the purview of wellbeing.

5.1. Implications for Practice

The key implications of this research for school practice pertain to student wellbeing. What has been learnt here about nature visibilisation and the types of activity which bring about positive change to their children's notions of wellbeing can inform schools' efforts to promote it. This study's methodology forefronts why subjective assessments of wellbeing are essential for gaining an understanding of how children see themselves and the world around them. Adopting arts-in-nature practice can tap into the sometimes overlooked dimensions of wellbeing and children's capacities for 'seeing' nature in new and meaningful ways.

It is noteworthy, however, that children in this study had eight full days to undertake the processes that contributed towards nature visibilisation, under the expert guidance of the artists. The positive outcomes detailed here likely relied on special and prolonged devotion to these activities. Going forward, it is important to consider how schools can support teachers to engage with arts-in-nature pedagogies when both time and funding are scarce. As with any whole-school approach, serious commitment and enthusiasm on behalf of the leadership team is requisite.

Although it was not a focal point of this paper, there are also important implications for the pursuit of sustainability-related goals. Attempts to instil in children empathy for their environment and the longevity of the plant will need to align with what they perceive as valuable and how they factor their personal wellbeing into their understanding of these topics. The outcomes of nature visibilisation demonstrated here pose exciting possibilities for how schools can use arts-in-nature practice to boost interest in environmental sustainability and pro-environmental behaviour.

5.2. Implications for Further Research

From a practical standpoint, it may be beyond many schools' capacity to bring in artists, amateur or professional, to support students' learning. There is cause to consider, therefore, by what other means arts-in-nature practice might be orchestrated on a large scale. For instance, could this be an opportunity for the school's own art department to facilitate a whole-school intervention? And would this be feasible? Although the arts are increasingly marginalised, it is likely that teachers who are well acquainted with the school and its students are in positions to provide the kind of tailored experiences which beget real transformative learning. Other ways to increase capacity could be through teacher training programmes led by arts organisations (e.g., [84]) or community-based volunteers (e.g., the Branching Out project's use of 'Community Artscapers' [85]). Future research should investigate ways through which interacting with community assets could broaden the scope for schools to support children's wellbeing through arts-in-nature practice.

While the arts-in-nature sessions were structured and organised in the Eco-Capabilities study, future research could investigate the benefits of free or self-directed play outdoors in relation to nature visibilisation. In addition, although we have focused our analysis on the relation to the living world (i.e., plants and animals), further research could shed light into wider natural elements (e.g., water, the sun, and the sky).

Finally, while this study has emphasised its importance to wellbeing, there is more to be learnt about the direct benefits of nature visibilisation to the environment. Our conclusions as to the relationship between these outcomes are implicit in nature, and future research should empirically explore how children's wellbeing resulting from nature visibilisation contributes to pro-environmental behaviour and its sustainability. Studies which can establish this link will likely strengthen the cause for advancing arts-in-nature activity in schools.

5.3. Limitations

The first limitation to acknowledge is that the distinction between plants and animals encompassing 'nature' in children's drawings was, in some instances, difficult to determine. Several illustrations grouped these life forms together (e.g., a bird in a tree), while others clearly separated them (e.g., a cat in a house with a tree outside). We used our best

judgement to evaluate the participants' depictions of nature, and whether its components should be deemed 'the main focus' or 'in the background'. This is the extent to which this relationship was important for the purposes of this study.

Secondly, it is worth considering how COVID-19 worsened public inequalities, including access to green spaces (i.e., green poverty). For some children, the unfortunate reality entailed remaining in their homes with limited or no interaction with the outdoors. Although it is not possible to pinpoint how, it is reasonable to suspect that their initial drawings of their 'happy place' were influenced by the challenges they faced during and immediately following the lockdown.

Of final note is that children's conceptions of wellbeing, as illustrated in their 'happy place', cannot be entirely attributed to nature visibilisation. There are many aspects of the arts-in-nature intervention, as well as other school and life events, which could have influenced this data. We did not set out to definitively measure how wellbeing was affected, as this study is, by its nature, subjective and exploratory. Rather, we have presented evidence to suggest that participating in creative pedagogies outdoors encourages children to bridge the natural environmental with their perspectives of living well in the world today.

Author Contributions: Conceptualisation, N.W.; methodology, N.W.; validation, N.W. and Z.M.; formal analysis, N.W. and Z.M.; investigation, N.W. and Z.M.; data curation, N.W. and Z.M.; writing—original draft preparation, N.W., J.P. and Z.M.; writing—review and editing, N.W., J.P. and Z.M.; project administration, N.W. and Z.M.; funding acquisition, N.W. All authors have read and agreed to the published version of the manuscript.

Funding: This work was funded by the Arts and Humanities Research Council under Grant AH/S006206/2.

Institutional Review Board Statement: The study was conducted in accordance with the Declaration of Helsinki and approved by the Ethics Committee of Anglia Ruskin University (reference 19/20/019, 19 December 2019).

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: Not applicable.

Acknowledgments: We would like to thank the children, artists, teachers, and headteachers who worked with us throughout the Eco-Capabilities project and without whose enthusiastic participation, this work would not have been possible.

Conflicts of Interest: The authors declare no conflict of interest.

References

1. Peytrignet, S.; Marszalek, K.; Grimm, F.; Thorlby, R.; Wagstaff, T. Children and Young People's Mental Health: COVID-19 and the Road Ahead. The Health Foundation. 2022. Available online: <https://www.health.org.uk/news-and-comment/charts-and-infographics/children-and-young-people-s-mental-health> (accessed on 30 June 2023).
2. NHS Digital. Mental Health of Children and Young People in England 2022—Wave 3 Follow Up to the 2017 Survey. 2022. Available online: <https://digital.nhs.uk/data-and-information/publications/statistical/mental-health-of-children-and-young-people-in-england/2022-follow-up-to-the-2017-survey> (accessed on 30 June 2023).
3. Westrupp, E.M.; Bennett, C.; Berkowitz, T.; Youssef, G.J.; Toumbourou, J.W.; Tucker, R.; Andrews, F.J.; Evans, S.; Teague, S.J.; Karantzas, G.C.; et al. Parent, and family mental health and functioning in Australia during COVID-19: Comparison to pre-pandemic data. *Eur. Child Adolesc. Psychiatry* **2023**, *32*, 317–330. [CrossRef] [PubMed]
4. Leeb, R.T.; Bitsko, R.H.; Radhakrishnan, L.; Martinez, P.; Njai, R.; Holland, K.M. Mental Health-Related Emergency Department Visits Among Children Aged < 18 Years During the COVID-19 Pandemic—United States, January 1–October 17, 2020. *MMWR Morb. Mortal Wkly. Rep.* **2020**, *69*, 1675–1680. [CrossRef]
5. Melchior, M. Social inequalities in children's mental health: Isn't it time for action? *Eur. Child Adolesc. Psychiatry* **2021**, *30*, 1317–1318. [CrossRef] [PubMed]
6. stem4 Mental Health Pressures Push Schools and Colleges to Crisis Point. 2021. Available online: <https://stem4.org.uk/wp-content/uploads/2021/02/0115-stem4-Mental-Health-Survey-2020-A4-P-FINAL-2.pdf> (accessed on 20 June 2023).
7. Vostanis, P.; Humphrey, N.; Fitzgerald, N.; Deighton, J.; Wolpert, M. How do schools promote emotional well-being among their pupils? Findings from a national scoping survey of mental health provision in English schools. *Child Adolesc. Ment. Health* **2013**, *18*, 151–157. [CrossRef] [PubMed]

8. McCormick, R. Does access to green space impact the mental well-being of children: A systematic review. *J. Pediatr. Nurs.* **2017**, *37*, 3–7. [CrossRef]
9. Tillmann, S.; Tobin, D.; Avison, W.; Gilliland, J. Mental health benefits of interactions with nature in children and teenagers: A systematic review. *J. Epidemiol. Community Health* **2018**, *72*, 958–966. [CrossRef]
10. Vanaken, G.J.; Danckaerts, M. Impact of green space exposure on children's and adolescents' mental health: A systematic review. *Int. J. Environ. Res. Public Health* **2018**, *15*, 2668. [CrossRef]
11. Natural Trust. Natural Childhood Report. 2012. Available online: <https://nt.global.ssl.fastly.net/documents/read-our-natural-childhood-report.pdf> (accessed on 11 February 2022).
12. Natural England. The People and Nature Survey. 2020. Available online: <https://www.gov.uk/government/collections/people-and-nature-survey-for-england> (accessed on 21 January 2023).
13. Reilly, J.; Tremblay, M. Rewild Your Kids: Why Playing outside Should Be a Postpandemic Priority. 2021. Available online: <https://theconversation.com/rewild-your-kids-why-playingoutside-should-be-a-post-pandemic-priority-156077> (accessed on 21 January 2023).
14. Friedman, S.; Imrie, S.; Fink, E.; Gedikoglu; Hughes, C. Understanding changes to children's connection to nature during the pandemic and implications for child well-being. *People Nat.* **2021**, *4*, 155–165. [CrossRef]
15. Wandersee, J.H.; Schussler, E.E. A Model of Plant Blindness. In *Poster and Paper Presented at the 3rd Annual Associates Meeting of the 15^o Laboratory*; Louisiana State University: Baton Rouge, LA, USA, 1998.
16. Pocock, M.J.; Hamlin, I.; Christelow, J.; Passmore, H.-A.; Richardson, M. The benefits of citizen science and nature-noticing activity for well-being, nature connectedness and pro-nature conservation behaviours. *People Nat.* **2023**, *5*, 591–606. [CrossRef]
17. Lovell, R.; White, M.P.; Wheeler, B.; Taylor, T.; Elliott, L. A rapid Scoping Review of Health and Wellbeing Evidence for the Green Infrastructure Standards. European Centre for Environment and Human Health, 2020. Available online: <https://beyondgreenspace.net/2020/10/05/rapid-review-green-infrastructure-standards/> (accessed on 21 January 2023).
18. Browning, M.; Rigolon, A. School green space and its impact on academic performance: A systematic literature review. *Int. J. Environ. Res. Public Health* **2019**, *16*, 429. [CrossRef]
19. Richardson, E.A.; Pearce, J.; Shortt, N.K.; Mitchell, R. The role of public and private natural space in children's social, emotional and behavioural development in Scotland: A longitudinal study. *Environ. Res.* **2017**, *158*, 729–736. [CrossRef]
20. Plymouth University. Transforming Outdoor Learning in Schools: Lessons from the Natural Connections Project, 2016. Available online: https://www.plymouth.ac.uk/uploads/production/document/path/7/7634/Transforming_Outdoor_Learning_in_Schools_SCN.pdf (accessed on 21 January 2023).
21. Flowers, M.; Lipsett, L.; Barrett, M.J. Animism, creativity, and a tree: Shifting into nature connection through attention to subtle energies and contemplative art practice. *Can. J. Environ. Educ.* **2014**, *19*, 111–126.
22. France, R.L. *Healing Natures, Repairing Relationships*; Green Frigate Books: Faringdon, UK, 2008.
23. Goto, R.; Collins, T. *Eco-Art Practices: New Practices, New Pedagogies*; Routledge: London, UK; New York, NY, USA, 2005.
24. Inwood, H. Mapping eco-art education. *Can. Rev. Art Educ.* **2008**, *35*, 57–73.
25. Orr, D.W. *Earth in Mind: On Education, Environment, and the Human Prospect*; Island Press: Washington, DC, USA, 2004.
26. Orr, D.W.; Stone, M.K.; Barlow, Z.; Capra, F. *Ecological Literacy: Educating Our Children for a Sustainable World*; Sierra Club Books: San Francisco, CA, USA, 2005.
27. Richardson, M. *Reconnection: Fixing Our Broken Relationship with Nature*; Pelagic Publishing: London, UK, 2023.
28. Tsevreñi, I. Allying with The Plants: A Pedagogical Path Towards the Planthropocene. *Interdiscip. J. Environ. Sci. Educ.* **2021**, *17*, e2249. [CrossRef]
29. Walshe, N.; Moula, Z.; Lee, E. Eco-Capabilities as a Pathway to Wellbeing and Sustainability. *Sustainability* **2022**, *14*, 3582. [CrossRef]
30. Muhr, M.M. Beyond words—The potential of arts-based research on human-nature connectedness. *Ecosyst. People* **2020**, *16*, 249–257. [CrossRef]
31. Moula, Z.; Palmer, K.; Walshe, N. A Systematic Review of arts-Based Interventions Delivered to Children and Young People in Nature or Outdoor Spaces: The Impact on Connection to Nature, Health, and Wellbeing. Research Gate Pre-print 2022. Available online: <http://dx.doi.org/10.13140/RG.2.2.18427.85281> (accessed on 30 June 2023).
32. Dolan, P. *Happiness by Design: Finding Pleasure and Purpose in Everyday Life*; Penguin Random House: London, UK, 2014.
33. Noddings, N. *Happiness and Education*; Cambridge University Press: New York, NY, USA, 2003.
34. Seligman, M.E. *Flourish: A New Understanding of Happiness and Well-Being—And How to Achieve Them*; Nicholas Brealey: Boston, MA, USA, 2011.
35. Deci, E.L.; Ryan, R.M. Hedonia, eudaimonia, and well-being: An introduction. *J. Happiness Stud.* **2008**, *9*, 1–11. [CrossRef]
36. Sen, A. Capability and Well-being. In *The Quality of Life*; Nussbaum, M., Sen, A., Eds.; Oxford University Press: Oxford, UK, 1993. [CrossRef]
37. Patalay, P.; Fitzsimons, E. Correlates of mental illness and wellbeing in children: Are they the same? Results from the UK Millennium Cohort Study. *J. Am. Acad. Child Adolesc. Psychiatry* **2016**, *55*, 771–783. [CrossRef]
38. Patalay, P.; Fitzsimons, E. *Mental Ill-Health and Well-Being at Age 14—Initial Findings from the Millennium Cohort Study Age 14 Survey*; Centre for Longitudinal Studies: London, UK, 2018.

39. De Ruyter, D. Well-being and education. In *Education, Philosophy and Well-Being: New Perspectives on the Work of John White*; Suissa, J., Winstanley, C., Marples, R., Eds.; Routledge: Abington, PA, USA, 2015; pp. 84–98.
40. Parsley, K.M. Plant awareness disparity: A case for renaming plant blindness. *Plants People Planet* **2020**, *2*, 598–601. [CrossRef]
41. Thomas, H.; Ougham, H.; Sanders, D. Plant blindness and sustainability. *Int. J. Sust. Higher Educ.* **2022**, *23*, 41–57. [CrossRef]
42. McDonough Mackenzie, C.; Kuebbing, S.; Barak, R.S. We do not want to ‘cure plant blindness’ we want to grow plant love. *Plants People, Planet* **2019**, *1*, 139–141. [CrossRef]
43. Cohen, M.A.; Dennett, D.C.; Kanwisher, N. What is the bandwidth of perceptual experience? *Trends Cogn. Sci.* **2016**, *20*, 324–335. [CrossRef]
44. New, J.; Cosmides, L.; Tooby, J. Category-specific attention for animals reflects ancestral priorities, not expertise. *Proc. Natl. Acad. Sci. USA* **2007**, *104*, 16598–16603. [CrossRef] [PubMed]
45. Balas, B.; Momsen, J.L. Attention ‘blinks’ differently for plants and animal. *CBE Life Sci. Educ.* **2014**, *13*, 437–443. [CrossRef] [PubMed]
46. Baird, J.H.; Lazarowitz, R.; Allman, V. Science choices and preferences of middle and secondary school students in Utah. *J. Res. Sci. Teach* **1984**, *21*, 47–54. [CrossRef]
47. Wandersee, J.H. Plants or animals—Which do junior high school students prefer to study? *J. Res. Sci. Teach* **1986**, *23*, 415–426. [CrossRef]
48. Schussler, E.E.; Olzak, L.A. It’s not easy being green: Student recall of plant and animal images. *J. Biol. Educ.* **2008**, *42*, 112–119. [CrossRef]
49. Carey, S. *Conceptual Change in Childhood*; MIT Press: Cambridge, MA, USA, 1985.
50. Yorek, M.; Sahin, M.; Aydin, H. Are animals ‘more alive’ than plants? Animistic-anthropocentric construction of life concept. *Eurasia J. Math. Sci. Technol. Educ.* **2009**, *5*, 369–378. [CrossRef]
51. Balding, M.; Williams, K.J.H. Plant blindness and the implications for plant conservation. *Soc. Conserv. Biol.* **2016**, *30*, 1192–1199. [CrossRef]
52. Hall, M. *Plants as Persons: A Philosophical Botany*; State University of New York Press: Albany, NY, USA, 2011.
53. Bozniak, E.C. Challenges facing plant biology teaching programs. *Plant Sci. Bull.* **1994**, *40*, 42–46.
54. Wals, A.E.; Brody, M.; Dillon, J.; Stevenson, R.B. Convergence between Science and Environmental Education. *Science* **2014**, *344*, 583–584. [CrossRef]
55. Link-Perez, M.A.; Dollo, V.H.; Weber, K.M.; Schussler, E.E. What’s in a name: Differential labeling of plant and animal photographs in two nationally syndicated elementary science textbook series. *Int. J. Sci. Educ.* **2009**, *32*, 1227–1242. [CrossRef]
56. Amprazis, A.; Papadopoulou, P.; Malandrakis, G. Plant blindness and children’s recognition of plants as living things: A research in the primary schools context. *J. Biol. Educ.* **2021**, *55*, 139–154. [CrossRef]
57. Martínez-Losada, C.; García-Barros, S.; Garrido, M. How children characterise living beings and the activities in which they engage. *J. Biol. Educ.* **2014**, *48*, 201–210. [CrossRef]
58. Venville, G. Young children learning about living things: A case study of conceptual change from ontological and social perspectives. *J. Res. Sci. Teach* **2004**, *41*, 449–480. [CrossRef]
59. Stepan, J. Biology in elementary schools: Children’s conceptions of life. *Am. Biol. Teach* **1985**, *47*, 222–225. [CrossRef]
60. Bai, H. Re-animating the universe: Environmental education and philosophical animism. In *Fields of Green: Restoring Culture, Environment, and Education*; McKenzie, M., Bai, H., Hart, P., Jickling, B., Eds.; Hampton Press: Cresskill, NJ, USA, 2009; pp. 135–151.
61. Milstein, T.; Thomas, M.O.; Hoffmann, J.; Carr, J. “Even I am a Part of Nature”: Unraveling the Human/Nature Binary to Enable Systems Change. *Environ. Commun.* **2023**, *17*, 421–436. [CrossRef]
62. Carr, J.; Milstein, T. “See nothing but beauty”: The shared work of making anthropogenic destruction invisible to the human eye. *Geoforum J. Phys. Hum. Reg. Geo.* **2021**, *122*, 183–192. [CrossRef]
63. Walshe, N.; Lee, E.; Lloyd, D.; Sapsed, R. STEM to STEAM as an approach to human development. In *Why Science and Art Creativities Matter*; Brill: Leiden, The Netherlands, 2020. [CrossRef]
64. Moula, Z.; Walshe, N.; Lee, E. “It was like I was not a person, it was like I was the nature”: The impact of arts-in-nature experiences on the wellbeing of children living in areas of high deprivation. *J. Environ. Psychol.* **2023**, *90*, 102072. [CrossRef]
65. McNiff, S. Artistic expressions as primary modes of inquiry. *Br. J. Guid Couns.* **2011**, *39*, 385–396. [CrossRef]
66. Culshaw, S. The unspoken power of collage? Using an innovative arts-based research method to explore the experience of struggling as a teacher. *Lond. Rev. Educ.* **2019**, *17*, 268–283. [CrossRef]
67. Mannay, D.; Staples, E.; Hallett, S.; Roberts, L.; Rees, A.; Evans, R.; Andrews, D. Enabling talk and reframing messages: Working creatively with care experienced children and young people to recount and re-represent their everyday experiences. *Child Care Pract.* **2017**, *25*, 51–63. [CrossRef]
68. Braun, V.; Clarke, V. Using thematic analysis in psychology. *Qual. Res. Psychol.* **2006**, *3*, 77–101. [CrossRef]
69. Denzin, N.K.; Lincoln, Y.S. *The SAGE Handbook of Qualitative Research*, 6th ed.; Sage Publications: Thousand Oaks, CA, USA, 2005.
70. BERA. Ethical Guidelines for Educational Research 2018. Available online: <https://www.bera.ac.uk/publication/ethical-guidelines-for-educational-research-2018> (accessed on 30 June 2023).
71. Moula, Z.; Palmer, K.; Walshe, N. The Effectiveness of Arts-Based Interventions Delivered in Nature or Outdoor Spaces for Children’s and Young People’s Mental Health and Wellbeing. PROSPERO. CRD42021286574. 2021. Available online: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42021286574 (accessed on 30 June 2023).

72. Sheffield, D.; Butler, C.W.; Richardson, M. Improving Nature Connectedness in Adults: A Meta-Analysis, Review and Agenda. *Sustainability* **2022**, *14*, 12494. [[CrossRef](#)]
73. Gagnon Thompson, S.C.; Barton, M.A. Ecocentric and anthropocentric attitudes toward the environment. *J. Environ. Psychol* **1994**, *14*, 149–157. [[CrossRef](#)]
74. Stokols, D. Instrumental and spiritual views of people-environment relations. *Am. Psychol.* **1990**, *45*, 641–646. [[CrossRef](#)]
75. Oelschlaeger, M. *The Wilderness Condition: Essays on Environment and Civilization*; Island Press: Washington, DC, USA, 1992.
76. Salmón, E. Kincentric ecology: Indigenous perceptions of the human-nature relationship. *Ecol. Appl.* **2000**, *10*, 1327–1332.
77. Louv, R. *Last Child in the Woods: Saving Our Children from Nature-deficit Disorder*; Algonquin books: Chapel Hill, NC, USA, 2008.
78. Barragan-Jason, G.; Loreau, M.; de Mazancourt, C.; Singer, M.C.; Parmesan, C. Psychological and physical connections with nature improve both human well-being and nature conservation: A systematic review of meta-analyses. *Biol. Conserv.* **2023**, *277*, 109842. [[CrossRef](#)]
79. Richardson, M. Nature Contact is not Connection. 2023. Available online: <https://findingnature.org.uk/2023/01/05/infinity-of-connection/> (accessed on 30 June 2023).
80. Stets, J.E.; Biga, C.F. Bringing identity theory into environmental sociology. *Sociol. Theory* **2003**, *21*, 398–423. [[CrossRef](#)]
81. Mensah, C.A.; Andres, L.; Perera, U.; Roji, A. Enhancing quality of life through the lens of green spaces: A systematic review approach. *Int. J. Wellbeing* **2016**, *6*, 1. [[CrossRef](#)]
82. Coventry, P.A.; Brown, J.; Pervin, J.; Brabyn, S.; Pateman, R.; Breedvelt, J.; Gilbody, S.; Stancliffe, R.; McEachan, R.; White, P. Nature-based outdoor activities for mental and physical health: Systematic review and meta-analysis. *SSM Popul. Health* **2021**, *1*, 100934. [[CrossRef](#)] [[PubMed](#)]
83. Siddons Heginworth, I.; Nash, G. *Environmental Arts Therapy: The Wild Frontiers of the Heart*; Routledge: London, UK, 2020.
84. Walshe, N.; Bungay, H.; Dadswell, A. Sustainable Outdoor Education: Organisations Connection Children and Young People with Nature through the Arts. *Sustainability* **2023**, *15*, 3941. [[CrossRef](#)]
85. Walshe, N.; Bungay, H. Branching Out: Tackling Mental Health Inequalities in Schools with Community Artsclapers. Available online: <https://www.ucl.ac.uk/ioe/departments-and-centres/departments/curriculum-pedagogy-and-assessment/branching-out-tackling-mental-health-inequalities-schools-community-artsclapers> (accessed on 30 June 2023).

Disclaimer/Publisher’s Note: The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.