



# A Literature Review Exploring Young Children's Access to Natural Environments in the UK

December 2021

Dr. Tansy Watts

## A Summary of Report Findings

### Introduction

This report draws on currently published literature to explore inequalities in babies' and young children's access to a natural environment. This is a concern brought to greater public awareness through recent lockdown responses to the Covid-19 pandemic but can be understood as a longer-term problem. A literature search has been conducted in seeking to understand which children have limited access compared with their peers, and the types of barriers influential to this. The report highlights identified impacts from the Covid-19 pandemic and demonstrates influence from a loss of social infrastructure and its role in family life. The report then shares solutions offered by early childhood education and care services (ECEC) in promoting access to a natural environment. Although there is limited awareness of social injustices to be addressed through such practices, early education can be seen as well-positioned to do so. The report is framed by a Froebelian perspective and suggests that a reconnection of early years practice with an originating holistic logic may now offer valuable guidelines with relevance to current conditions.

## A Froebelian Perspective

The report is framed by a Froebelian perspective in considering the significance of nature contact for children, families and wider communities and the role of education in supporting this. Froebelian educational philosophy has been historically influential on current ECEC principles and practices. Many of Froebel's original kindergarten practices have endured in evolved forms, but now separated from their original holistic logic. This is a logic that is underpinned by a holistic philosophy that frames the healthy learning and development of children according to their interdependence with wider relations. The assertion of this report is that a reconnection of ECEC practices with this logic can offer guidance towards a more ecological ECEC that can align with current environmental needs.

## The Current Context

Inequalities in children's nature access can be understood as situated by global processes playing out in local conditions. Urbanisation is a global trend through which there has been a progressive concentration of people and activity with impacts on life in urban, suburban and rural contexts. Access to a natural environment is one of these impacts and occurs through complex inter-related social, economic and environmental conditions. It is through these mechanisms that there are barriers formed to children and family's access to natural environments and social inequalities in the ways this can play out. It is through these conditions that the value of nature contact is coming into focus, understood as supportive to human and environmental health and influential in ongoing reciprocal relations.

## Research Methods

The literature search has explored UK Government policy and its commissioned surveys and includes an overview of policy specific to Wales, Scotland and Northern Ireland. This is supplemented by a search of current academic literature using key terms drawn from the project's original research questions. An investigation has been carried out around specific characteristics of populations and social injustice issues highlighted through the search. This is not a comprehensive review of available literature but an overview of insights, and points to gaps in literature and areas for further exploration. The literature largely reflects insights

relevant to children of preschool age and above, although specific reference to the absence of babies and toddlers is highlighted in current research. There are some examples of research conducted with older children included as representation of children's voice and this also gives insight into their experiences in family and educational contexts. A summary of findings will be offered in relation to the research questions that have guided the report. These include:

1. Is access to natural environments unequal?
2. Do some children (and their families / educators / carers) experience limited access to natural environments compared to their peers? If so, who are these children? What are the barriers to accessing natural environments (e.g., structural, geographical, logistical, practical, cultural, societal, economic or personal) ?
3. Has Covid-19 affected babies' and young children's access to natural environments? If so, how?
4. What solutions have enabled children to overcome barriers to access through early childhood education and care provision (ECEC)?

## Research Findings

### 1. **Is Access to Natural Environments Unequal?**

- There are inequalities in access to natural environments.
- However, exploration of nature contact in current research is raising questions around the understanding of 'nature access.' Nature access can be considered both in terms of physical contact with a natural environment as well as 'inner' states of nature connection, and there is a current interest in exploring their relationship or interconnection.
- Nature contact and connection are useful concepts for considering human-environment relations according to an 'inner' awareness, a perceived 'outer' environment, and the degree to which these 'belong' to each other.
- Froebel's philosophy can align with this understanding and offer pedagogical guidelines seeking to support such connections.

- Awareness of the question of ‘nature access’ can change research insights. This includes the questions that we ask, and how these might now become more culturally integrating.

**2. Do Some Children (And Their Families / Educators / Carers) Experience Limited Access to Natural Environments Compared to Their Peers? If So, Who Are These Children? What Are the Barriers to Accessing Natural Environments (e.g., Structural, Geographical, Logistical / Practical, Cultural, Societal, Economic or Personal)?**

- Access to a natural environment is influenced by the qualities of the local environment that people are living in, and time or ‘lifestyle’ factors.
- Factors influential to local context include income/multiple dimensions of deprivation, and impactful cultural influences that shape accessibility of local resources e.g., play equipment and facilities designed according to understanding of ‘normative’ engagement
- Factors influential to time availability include age or life stage and associated responsibilities, income, access issues including transport, and personal preference. However, personal preference needs to be contextualised by consideration of dominant cultural ‘norms’ that can be excluding to identified ‘minority’ populations (ethnicity and disability are important dimensions of this).
- There is now a need for greater consultation with all populations to integrate diverse needs and perspectives and to support equality of access to natural and other environments.

**3. Has Covid-19 Affected Babies’ and Young Children’s Access to Natural Environments? If so, how?**

- Fewer children than adults spent more time outside during the covid-19 lockdown conditions.
- The company of other children was influential on children's choice to go outside.
- Closure of public services was impactful, and this included educational contexts and community resources such as parks.
- There was an inequality of access to private gardens highlighted.
- Parks were both important for children's access to a natural environment where there are limited wider opportunities, and also children's preference as a place to play.
- Lack of daily routine was influential on family behaviours and mood, and this was impactful on physical and emotional health with both immediate and longer-term implications.
- Outdoor activity was identified as an important means for addressing impacts from Covid-19 pandemic lockdown periods and should be promoted as part of a recovery.
- Education was identified as a means to facilitate children's access to a natural environment, however there is a prevailing understanding that this can sit 'outside' of the main educational purpose.
- Both policy and pedagogy are important in facilitating educational shift towards an interconnection between human-environmental health, wellbeing, learning and development.

#### **4. What Solutions Have Enabled Children to Overcome Barriers to Access Through Early Childhood Education and Care Provision (ECEC)?**

- Early education is well positioned to facilitate children's nature access through outdoor play provision forming an integral aspect of practice. This is a development of practice in which Froebelian pedagogy, and its underpinning holistic philosophy has been historically influential.
- Recent examples of practice demonstrate three main ways in which nature access is currently promoted through ECEC. This is through naturalizing existent outdoor

provision, trips to natural environments or the establishment of new settings within natural environments.

- Overall, there is limited awareness in literature of the role ECEC could play in promoting an equality of access to natural environments. The need for education to address social justice issues is recognised but there is not necessarily awareness of an associated environmental dimension.
- Children's health is a policy driver for promoting outdoor nature play across a number of national contexts.
- The promotion of outdoor education can benefit from a collaborative approach between children, families, practitioners, and communities.
- Children's input during such processes can affect a cultural shift towards risk-benefit analysis, attention to sensory qualities of the natural world and the value in 'small scale' or everyday opportunities for nature access in and through current conditions.
- Trips to a natural environment outside an educational context can be associated with a complimentary or compensatory agenda and cultural values that now need to be disrupted, questioned, and explored. It is important to consider nature as "negotiated and constructed through interrelations and interactions beyond its particular borders" and to move beyond cultural norms that can position some children as 'other' (Harju *et al.*, 2020, p. 249).
- The promotion of environmental relations can be supportive to social relations, and this can be 'therapeutic' at multiple scales of community.

## Conclusions

Research exploring children's access to a natural environment has highlighted the significance of multiple dimensions of deprivation as barriers (Abel *et al.*, 2016). This includes the environments in which children and families may be living where there is reduced access to green open spaces, higher levels of environmental pollution and increased social and environmental risks to children and families. Time availability is one of the most frequently cited reasons for not taking visits to a natural environment and those on low

incomes can have long or anti-social working hours alongside wider responsibilities impactful on opportunities. Practical barriers include transport with lower rates of car ownership in low-income populations within a broader research picture that is demonstrating few visits taken to a natural environment by public transport. Personal preference can influence choices made to visit a natural environment, but it is perhaps important not to consider this in separation from the wider situating factors. A demographic analysis of large-scale survey findings has highlighted concerns about different populations access to a natural environments and associated losses to health and wellbeing benefits. However, smaller-scale qualitative research has started to engage with individual perspectives and experiences illuminating a complexity of interconnected socio-cultural-historical-environmental conditions. Such studies are highlighting minoritised cultural voices that now need to be attended to and the suggestion that integration of diverse cultural backgrounds and abilities can contribute to more expansive human-environment relations.

A turn in research attention towards relations between ‘nature contact’ and an inner state of ‘nature connection’ is beginning to illuminate connective pathways through the existent barriers. Such findings are suggesting that nature connection can occur in separation to direct contact with a natural environment. This contributes to an understanding of ‘nature’ beyond specific environments and equally within our own relations and responses. Our current conditions have given rise to a concern about children’s loss of nature contact, and an adult engagement in its facilitation. The motivation is children’s health with future implication for the adult and planet in ongoing relations. Research focused on addressing this concern may be highlighting children as another minoritised voice requiring integration. This might be considered in relation to research findings that demonstrate their influence through a re-evaluation of risky play for children’s development or attention to sensory qualities of the natural world supportive to wider development. Pathways to ‘nature connection’ are identified in a capacity to experience beauty, meaning or emotion within environmental relations (Lumber *et al.*, 2017). These are qualities that children experience through playful, exploratory relations and can draw adults into experiencing alongside them.

Considerations of contact, connection and nature access can frame understanding of the role now played by ECEC. Current examples of practice demonstrate a naturalising of outdoor spaces, trips to a natural environment or new settings being established within a natural

environment. However, research into such practices has raised warnings about the social processes involved, and the potential for a ‘compensatory’ or ‘complementary’ agenda associated with dominant and minoritised cultures. Both policy and pedagogy are identified as key in promoting an equality of nature access through early education (Josephidou *et al.*, 2021) thereby supporting an understanding of its role as integral to educational purpose. A contemporary reconnection of early years principles and practices with historical roots in holistic Froebelian logic may now offer guidelines for connective human-environment practices. The findings from recent literature can be considered in relation to the following three characteristics of Froebelian pedagogy, and their potential to align with current human-environment needs.

- An educational context envisioned as a continuity of social and environmental relations.
- Caring, revitalising and reciprocal interactions between children, adults, and natural environments.
- Support for the engagement of our full relational capacities in forming connections.

## Report Contents

A Summary of Report Findings.....	1
Introduction.....	1
A Froebelian Perspective .....	2
The Current Context .....	2
Research Methods.....	2
Research Findings.....	3
Conclusions.....	6
1. Introduction .....	10
2. A Froebelian Perspective on Nature Access.....	12
2.1 A Philosophy of Unity .....	12
2.2 Froebelian Pedagogy.....	13
3. The Current Context.....	14
3.1 Urbanization as a process with impact on all environments. ....	14
3.2 What is a Natural Environment? .....	15
4. The Research Methods .....	16
4.1 Data Sources and Search Terms.....	16
4.2 Selection Criteria .....	16
5. Access to a Natural Environment.....	18
5.1 Is Access to a Natural Environment Unequal? What are the Barriers? .....	18
5.2 In England.....	19
5.3 Unheard Voices.....	26
5.4 Insights from Wales, Scotland and Northern Ireland. ....	30
6. Has Covid-19 Affected Babies’ and Young Children’s Access to Natural Environments? How?.....	35
6.1 Inequalities in Access to Green Open Spaces .....	36
6.2 Benefits of Nature Access in Lockdown Conditions .....	38
6.3 The Role of Schools in Facilitating Outdoor Access .....	40
7. What Solutions Have Enabled Children to Overcome Barriers to Access Through Early Childhood Education and Care Provision (ECEC)? .....	44
7.1 The Naturalising of Outdoor Spaces in Early Years Provision .....	45
7.2 Trips to a Natural Environment.....	48
7.3 Nature as a Therapeutic Intervention .....	50
7.4 The Establishment of New Early Educational Provision Based in a Natural Environment.....	51
7.5 Gaps in Current Literature .....	52
8. Conclusions .....	53
References .....	56

## 1. Introduction

This project has explored young children's access to a natural environment in the UK. By young children, this means babies and children from birth to eight years of age, and by extension, the adults who can facilitate their access. **An inequality in children's access to a natural environment has gained greater public awareness during the Covid-19 related lockdown conditions. The restriction of public movement and closure of services highlighted both the varied home contexts of families and the role played by public services such as education in enabling access.** There is a growing body of evidence demonstrating the benefits of children's nature contact for physical health and wellbeing which through developmental association can have impacts across the whole lifespan. There is also the potential for health impacts beyond this through the establishment of pro-environmental attitudes and behaviours that can be impactful on the environment and human health through it. This research explores the current local conditions in which such relations can be established, and the literature review has been shaped by the following questions relating to recently highlighted concerns. This has taken a particular focus on the potential role now of early childhood education in promoting an equality of nature access through its services.

- Is access to natural environments unequal?
- Do some children (and their families / educators / carers) experience limited access to natural environments compared to their peers? Who are these children?
- What are the barriers to accessing natural environments? (e.g., structural, geographical, logistical / practical, cultural, societal, economic or personal)
- (How) Has Covid-19 affected babies' and young children's access to natural environments?
- What solutions have enabled children to overcome barriers to access through early childhood education and care provision (ECEC)?

The literature offers answers to these questions relevant to a current UK context and highlights the importance of considering the dimensions of 'access' to be explored. Children's physical access to a natural environment or nature 'contact' is being considered in

combination with psychological access understood as nature ‘connectedness’. Nature contact can be understood as having direct physical contact with the living systems of the world (Kahn & Kellert, 2002), and nature connectedness as a psychological construct involving emotional and cognitive dimensions which describe an individual’s sense of place in nature (Mayer & Frantz, 2004). These multiple dimensions of nature access are explored in seeking ways to respond to the current climate crisis and find effective means for creating shift in human-environment relations and conditions. Exploring multiple dimensions of access is highlighting that physical access to a natural environment can be supportive to the development of psychological access, but also that psychological access can occur not only in natural environments but also in wider contexts, experiences and relations. An exploration of the question of access can lead to important questions about nature, namely where do we understand this to be and how can it be experienced? The measures of contact and connection demonstrate the importance of holistic relational capacities through which an ‘inner’ sense of connection to an ‘outer’ world can be as important to the world as to us. This does not detract from the importance of children’s physical access to a natural environment for health and well-being but does start to open considerations of relevance to a wider context. The question of physical access can draw attention to barriers in current conditions but psychological access to the discernment of accessible pathways through current conditions. Both might be considered important in effecting shift in human-environment relations through illuminating the multiple ways in which humanity and wider life are essentially interconnected.

The report is informed by a Froebelian perspective which is underpinned by a holistic philosophy through which the individual is considered in terms of the whole of which they are part. Froebelian pedagogy can support a sense of this interconnection and seeks to facilitate this through all dimensions of educational practice. Children’s access to a natural environment is an important component of educational activity along with all other dimensions of experience that can embed a secure sense of self in the world. Children’s access to a natural environment is important to promote now as an experience that is rich, connective and health-enhancing. However, there are inequalities in children’s access to such experiences as highlighted in the recent lockdown conditions. The impacts from children’s loss of formative experiences during the difficult pandemic conditions are highlighted as important to address. Outdoor play is identified as an effective means to do so due to its multiple health and wellbeing benefits. The insights from this literature review have shaped

the next phase of research activity in exploring the views and experiences of children, families and early years practitioners on their relations with the natural world. The guiding questions for this will explore what aspects of current conditions are influential on access to a natural environment, along with aspects of nature important to young children, families and practitioners, and why. This report will outline the research journey from the initial research questions to later considerations.

## 2. A Froebelian Perspective on Nature Access

### 2.1 A Philosophy of Unity

This report is informed by a Froebelian educational perspective underpinned by a holistic philosophy shaping ‘kindergarten’ or early years practices. **Holistic education is oriented to a vision of all life that frames individual experience according to this significance.** Education in these terms can be understood according to the growth, renewal and development of the individual as part of the whole and can frame human experience as a spiritual being in search of meaning within this. Such a framework can position learning according to the

*“Discovery of true human nature...which goes beyond the psychic apparatus of thoughts and emotion. It is learning to belong to the whole. It is the discovery of our universal dimension, where genuine human values, not individual human values, reside”.*

*(Mahmoudi et al., 2012, p. 182)*

This educational approach has been described as “learning to be human” (Mahmoudi *et al.*, p. 182) and can offer a radical alternative to dominant educational practices. These have been shaped by theories and perspectives with a socio-cultural-historical approach (Fleer & Hedegaard, 2010) and oriented to individual development rather than a more holistic or ‘collective’ consideration of life (Elliot, 2014). **Holistic education shapes practices seeking to support the balanced development of and relationship between**

*“Different aspects of the individual (intellectual, physical, spiritual, emotional, social and Aesthetic), as well as the relationships between the*

*individual and other people, the individual and natural environment, the inner-self of students and external world.”*

*(Mahmoudi et al., 2012, p. 178)*

Such an approach focuses on “the interconnectedness of experience and reality” (Mahmoudi et al., 2012, p. 178) rather than more narrowly defined skills suggested to offer ‘fragmented knowledge’ that supports an alienation between the individual and surrounding life (Neves, 2009).

## 2.2 Froebelian Pedagogy

**A key Froebelian principal centres on the child in relation to family, community, nature, culture and society (The Froebel Trust, 2021). Through this there is equal emphasis placed on all social and environmental relations and the potential for influence across these. A child’s play and exploration can be considered equally significant to adult ways of knowing the world within a ‘collective’ understanding of learning as our ongoing ‘living development’ (Froebel, 1887). The qualities and patterns of the natural world can be considered to offer a source of guidance for our human activity and are described as the means for a “removal of obstacles to growth and the elimination of force in pedagogy” (Roseman, 1965, p. 331). Froebel drew attention to our understanding of the natural forces in the plant world, “which we grant space and time to...because we know that, in accordance with the laws that live in them, they will develop properly and grow well” (Froebel, 1887, p. 8). It is understanding that there is a continuity between human and surrounding life that is promoted through this educational philosophy. The aim is to support the vitality of life through ongoing connections and relations, and this shapes the following educational practices.**

- **Outdoor play in a natural environment** – The word ‘kindergarten’ means ‘garden for children’ and this denotes an education supportive to young children’s development in relationship with surrounding life. The garden is an educational resource that can enable access for young children to the natural world and to experience and build understanding of its interconnection with their own.
- **Indoor play with natural world inspired resources** – All resources, activities, songs, stories and educational interactions can be supportive to and embed a sense of

human-environment connectivity and belonging. Such activities seek to support children's engagement with the forms of Knowledge, Life and Beauty of the world.

- **Social Interactions** – The teacher's interactions can express the care of the world for the child and support their expression of care for the world in return. Supportive connections are through both social and environmental relations. The adult role can be understood as both a follower and leader. There is equal significance given to the child's "all-quickenning, creative power" (Froebel, 1887, p. 89) and adult "rational conscious guidance" (Brehony, 2017, p. 20) in supporting a relational vitality within a collective 'living development'.

These aspects of Froebelian pedagogy can be considered to support the "different aspects of the individual" (intellectual, physical, spiritual, emotional, social and Aesthetic) as a means for connectivity between "the inner-self" and "external world" (Mahmoudi *et al.*, 2012, p. 178). **This perspective is being considered in relation to current literature on children's nature access and the role now played by early education.**

### 3. The Current Context

#### 3.1 Urbanization as a process with impact on all environments.

There is a contemporary concern that children are generally spending less time in contact with a natural environment. The reasons for this are multiple and have been described in terms of "lifestyle changes due to urbanization and technological advancement, children's safety and parental concerns, and changing social norms around children's independent mobility" (Lee et al., 2021, p. 2). These interconnected factors have occurred within a global urbanisation which can be understood as a complex process of change through which there is a "progressive concentration of people and activities in towns and cities, thereby increasing the general scale of urban settlement" (Witherick & Small, 2001, p. 280). Fifty-five per cent of the world's human population currently live within urban environments, but this is projected to rise to sixty-eight percent by 2050 (UN, 2021). Impacts from this process are experienced not only in urban contexts but all environments through a centralising of activity and resources. Rural and suburban contexts can lack connective infrastructure and coherent

planning in meeting population needs and have impacts on daily lives through this. Urbanisation has occurred through interconnected social, economic and environmental conditions and there is recognition now of the need for processes to work together in ways more sustaining to life (UN, 2015). Although this is a process playing out at global scale it can be understood as the context for local impacts. **The World Health Organisation describes urbanisation as the process through which both global and local ecosystems “play an increasingly important role in public health” and currently this can be seen in the “interface between urban poverty, environment and health” (WHO, 2021). Inequalities in children’s access to natural environments in the UK can be understood as situated within global processes playing out in local conditions. This provides the context for current literature highlighting inequalities in health and life opportunities for children and families and determining access to natural environments as a significant means for its address.**

### 3.2 What is a Natural Environment?

Current concerns about nature ‘access’ can be understood in terms of experiences and associated benefits. This report reviews literature concerning children’s access understood both as physical contact with a natural environment, nature connection and how these might be inter-related. A current understanding of **nature in an ‘objective sense’ is defined as**

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

*(Hartig et al., 2014, p. 208)*

However, understanding has evolved to include a definition of **nature ‘in practice’** and this refers to **places that “provide opportunities to engage with and follow natural processes, but...are typically designed, constructed, regulated, and maintained”** and include aspects of human origin (Hartig et al., 2014, p. 208). Such sites include allotments, canals or urban parks, and the use of “catchall” terms such as green and blue spaces that are “located (and

created by humans) in urban areas” (Gidlow *et al.*, 2018, p. 324). ‘Green space’ refers to “patches of vegetated land”, and ‘blue space’ to “visible water” and these are terms used in contemporary urban planning aimed at greening urban infrastructure (European Commission, 2013). This report reviews literature exploring an inequality in children’s access to natural environments and the constitution of such experiences. Although there is an impetus to support this in addressing Covid-19 lockdown impacts, nature connection is pointing to deeper relations that align with a Froebelian perspective and will be considered in relation to education.

## 4. The Research Methods

### 4.1 Data Sources and Search Terms

The literature search has explored **Government policy relevant to the UK, and includes that specific to Wales, Scotland and Northern Ireland.** This has been carried out using the google search engine and has attended to relevant findings offered by third sector services. This has been accompanied by a search of **current academic literature** through use of Google Scholar, Canterbury Christ Church University library and the Children and Nature Network Research Library. The terms used for the literature search were drawn from the research questions and used a combination of the words children/child/baby/toddler, family, equality/inequality, access, nature/natural environment(s), contact, outdoors, Covid-19 and impacts. These variations in terminology were used to align with current understandings and their potential combination in use and to explore as widely as possible the ways in which these relations are currently considered in research. Specific characteristics were highlighted in the demographic analysis of research including low income, urban contexts, a minority ethnicity background and disability and further searches explored these terms. A subsequent investigation then investigated current research on ECEC practices supportive to children’s nature access.

### 4.2 Selection Criteria

The research questions gave rise to broad-ranging considerations and required choices to be made about which literature could be reviewed in the available time. This report offers an overview of current conditions as highlighted through national statistics and government policy and relevant issues being considered in recent academic research. **This is not a comprehensive review of all available literature, but an overview of insights gained through engaging with issues highlighted by the research questions. The report therefore points to areas for further exploration.** The search initiated with the most recent government policy in this area and includes reference to earlier relevant publications as highlighted by the search. Thirty-one policies or reports were examined in total: eleven UK Government policies relevant to England, nine Welsh, eight Scottish and three for Northern Ireland. Direct consultation with children within this has been with those over eight years old but has been drawn upon as an important perspective to include. A subsequent search of academic papers explored factors identified as influential to inequality in accessing natural environments in policy. This gave rise to the selection of forty-six pieces of recent relevant research, chosen for their contribution to addressing the research questions. Twenty-six papers were prioritised for review due to their concern with UK contexts. Additional international papers were drawn upon in expanding insight into areas under new consideration, including accessibility issues relevant to children with a disability, a deepening consideration of the role played by ethnicity and insights highlighted through the recent lockdown conditions. Examples of early years practice that could play a role in addressing this issue were drawn from examples of practice across international contexts. **A limited number of papers identify the addressing of social justice issues in accessing natural environments as a goal of early education and this represents a significant finding of this literature review.** Use of the term's equality, inequality, access, natural environment and early education in university library searches predominantly gave rise to literature concerned with social justice issues relevant to the child within the educational process itself. This might be considered to reflect dominant educational cultures oriented to the individual development of the child rather than a more ecological understanding of the child as essentially interconnected with their wider context. **Examples of early years practice are drawn upon in exploring its promotion of nature access, and to consider this in relation to a Froebelian holistic perspective.**

## 5. Access to a Natural Environment

### 5.1 Is Access to a Natural Environment Unequal? What are the Barriers?

The literature reviewed includes a mixture of recent policy and research which reflects a growing concern for the promotion of nature contact. This is evidenced in a government monitoring of such activity in England and insights gained through this over the past decade will be shared. The monitoring has raised awareness of inequalities in access to natural environments by different populations and has started to identify contributory factors. However, the data picture arising through the monitoring process needs to be framed with awareness of changes in perspective and terms of reference over time and data interpretation. There is demographic analysis in earlier surveys that is not intersectional and doesn't consider multiple issues impactful on individual choices and chances. However, this work has been important in raising awareness of inequalities and is included as an important part of the research picture. The benefits of nature contact for public and environmental health have been a strong driver but obscured some of the complex socio-cultural-historical factors influential within this context. Dominant cultural voices and associated 'normative' conceptions of nature access have obscured less well heard voices and insight into views and experiences. These are now identified as gaps that this research seeks to respond to. The following section will give an overview of the MENE survey, the access issues it has highlighted and some of the identified barriers. This will be followed by a consideration of race, disability and gender as specific characteristics and their identified impact on access as highlighted by literature. An overview will be offered of research insights relevant to Scotland, Wales and Northern Ireland. An overview of insights from international research on nature access in Covid-19 lockdown conditions will follow and highlights identified impacts on children and families. These conditions have raised awareness of the role played by education in facilitating children's nature access. The final section reviews examples of early educational practice that facilitates children's nature contact and connection and considers its role in promoting equitable access.

## 5.2 In England

### *The MENE Survey*

The Monitor of Engagement with the Natural Environment Survey (MENE) offers a “baseline and trend data on how people use the natural environment” in England (Defra, 2009, p. i). Since its inception, information has been gathered from half a million respondents and makes this the largest dataset of its kind. The initial survey defined natural environments according to “green open spaces in and around towns and cities as well as the wider countryside and coastline” (Defra, 2009, p. i) and highlighted a variation in access by different social groups. **The survey identified the highest level of visits amongst the 45 – 64 years age group and in the ABC1 socioeconomic groups and significantly lower levels in the oldest age groups (aged 65 and over), within the black and minority ethnic (BME) population and members of the DE socio-economic groups (Defra, 2009).** Factors were identified that could “either motivate or create a barrier to taking visits” (Defra, 2009, p. 8) and were determined as ‘notably’ related to life stage, presence of children and the potential for work or family commitments to reduce time available for outdoor recreation. A demographic analysis of data highlighted that those in the lowest socio-economic groups and black and minority ethnic population took the fewest visits, and these respondents were described as the “least positive” towards the natural environment. Both groups tended to live in urban areas, have low car access and be constrained in visits to the natural environment by a lack of time. The visits of these groups tended to be near to home, involve more urban locations and were described as taken for “functional” purposes defined as entertaining children, exercising or socialising with family and friends (Defra, 2009, p. 8). This could be compared with groups in the population that visited the natural environment most frequently, who were described as having the “most positive” attitudes to the natural environment, a connection that was more emotional and involved enjoyment of scenery and wildlife at favourite places. Those that agreed most strongly with attitude statements regarding the value of a natural environment included women, older age groups, those in higher socio-economic groups and those with a white ethnic background. People who rarely visited such natural environments were most likely to state that old age, ill health or a long-term illness or disability prevented them from doing so (Defra, 2009, p. ii). Almost a half of

all visits were taken by an adult on their own and children were present on 22 per cent of visits. (Defra, 2009, p. ii). The findings highlighted that “two thirds of visits were taken within two miles of the starting point of the visit (66 per cent), highlighting the importance of accessible green space that is close to home.” (Defra, 2009, p. ii). However, this survey also found that most respondents “engaged with the natural environment in some way at home or in their garden – 64 per cent enjoyed sitting or relaxing in their garden, 55 per cent took part in gardening and 53 per cent regularly or occasionally watched or listened to nature programmes on television or radio” (Defra, 2009, p. iii). This included 73% of those that never visited a natural environment as defined by the survey. An overall finding from the survey is the following:

*“The vast majority of the English adult population agreed that having green spaces close to where they live is important to them but slightly fewer have significant concerns about the state of the natural environment”*

*(Defra, 2009, p. iii)*

As a baseline, this monitoring process highlighted insights into respondent behaviours but in relation to implicit understandings about environments and types of engagement that were important. A lack of engagement with diverse perspectives means such insights require further exploration of the respondent choices and behaviours. The findings of this survey however highlighted children as an important group and led to a separate monitoring although initially through adult consultation.

### *The MENE Survey with Children*

Since 2013, adults with children (under 16) living in their household have been asked about their children's leisure time outdoors for the MENE survey. This has included frequency of visits, party composition, places visited and motivations, and the most recent reporting of this was in 2018. In this monitoring, children's access to natural environments has considered in the following terms:

*“Leisure time out of doors, away from your home. By out of doors, we mean open or green spaces in and around towns and cities, the coast and the countryside. This could be anything from a few minutes outside, to 30*

*minutes in the local park, to all-day. It may include time spent close to your home, further afield or while on holiday in England. However, this does not include routine shopping trips or time spent in your own garden.”*

*(Defra, 2018, p. 3)*

Monitoring of this type of engagement is highlighted in a press release as demonstrating **“clear inequalities with children living in lower income areas being less likely to visit the natural environment compared with those living in areas of higher income.” (Defra, 2019)**. Statistics include an identification that “the proportion of children spending time outdoors at least once a week is 75% in the least deprived areas (according to the Index of Multiple Deprivation), compared to 65% children living in the most deprived areas” and that “eighteen per cent of children living in the most deprived areas never visit the natural environment, compared to 13% children overall” (Defra, 2018, p. 9). The survey demonstrated that **children living in deprived areas are especially unlikely to spend time in countryside and coastal areas and there are barriers in “more limited leisure time available to parents on lower incomes as they are more likely to work longer hours, shift work, and at weekend.” (Defra, 2018, p. 9)**. A demographic analysis found 57% of children with a black, Asian or minority ethnicity background spending time outdoors at least once a week in comparison with 73% of children from white family backgrounds (Defra, 2018). However, this report also finds a “significant variation between different minority ethnic groups in relation to the frequency that children spend time outdoors, likelihood of children visiting the countryside and coast and the time children spend outdoors with no adults present” (Defra, 2018, p. 10). Importantly, there is **a need identified for building a better understanding and for further research to explore variations between minority ethnic groups**. Again, this survey highlights the **significance of local greenspaces** such as urban parks and playgrounds, and that such spaces are even more vital for those least likely to visit the natural environment frequently (Defra, 2019). The report highlights **an unmet potential in education meeting this need relevant to all age groups including the early years**. Despite growing awareness of the importance of promoting children’s access to natural environments there has been “no notable change in the proportion of children taking visits with schools over the last 5 years, staying between 6-7%.” (Defra, 2018, p. 11).

### *Nature Contact, Connection and Wellbeing.*

In 2020, the MENE survey shifted focus away from access considered purely in terms of contact with a natural environment and towards its relationship with nature connectedness and wellbeing in adults and children. This was driven by mounting evidence identifying a positive association between nature connection and wellbeing and pro-environmental behaviours as outcomes (Richardson *et al.*, 2016, Lumber *et al.*, 2017). The current climate crisis is the driver for this with an aim to respond effectively through the ambitions of the Government's 25 Year Environment Plan (Defra, 2018). This government plan seeks to enhance and protect the natural environment and promote human connection to nature to improve health and wellbeing. The aims of the survey are outlined as exploring

*“The relative importance of contact with nature and nature connection, the characteristics of experiences in natural environments that are most likely to support nature connection and delivery of outcomes, and the role of childhood experiences in developing nature connection into adulthood.”*

*(Defra, 2020)*

Nature connectedness involves “aspects related to a person’s affective (emotional) and cognitive relationship to nature and their sense of place in nature” (Defra, 2020, p. 7). An exploration of its connection with nature contact and impact on wellbeing are determined as important to development of policy and practices. In this survey, a definition of contact includes that with

*‘All different types of natural environment and the things that live in them. It can be close to where you live or further away and includes green spaces in towns and cities (such as your own and other people’s gardens, parks, playing fields and allotments); the countryside (such as farmland, woodland, hills and mountains); and watery places (such as streams, canals, rivers, lakes, the coast and the sea).’*

*(Defra, 2020, p. 9)*

This broader description of nature access offers new grounds for considering barriers, who these are relevant to and why. The survey identified positive relations between people’s

nature connectedness, wellbeing and pro-environmental behaviours. Pro-environmental behaviours and wellbeing were highest among people who reported high visit frequency to natural environments and high nature connectedness. However, **the survey also demonstrated that nature connectedness did not show a marked relationship with any of the socio-demographic variables studied other than with age.** Although tendencies could be identified in relation to socio-economic groups and gender, it is stated that **“little or no relationship between a person’s nature connectedness and their ethnicity as captured by the MENE survey” (Defra, 2020, p. 12).** This survey stressed that **“a high level of nature connectedness was not always associated with a high visit frequency” and that nature connectedness is “clearly being influenced by other factors” (Defra, 2020, p. 12).** This shift towards combining nature contact with connectedness highlighted the limitations of defining access in terms of visits to environments to which barriers might be present in daily life. It highlights psychological processes reflecting a connection with the natural world that can occur in separation to physical contact, and therefore that measuring physical contact with the natural world might only be part of the picture. This raises for awareness the impact of dominant cultural understandings of natural environment important for contact with and engagement judged as more worthwhile. The findings from this survey demonstrated that levels of nature connectedness according to these measures dipped as children approached their early teenage years, but that the survey population also demonstrated such levels being recovered with age. **Levels of nature connectedness among children were also positively related to those of the adults in their household and gave rise to the suggestion that it is not just promotion of access to natural environments that is important, but types of experience enabled whilst there.** The report however asserts that an ambition to optimise pro-environmental and wellbeing outcomes is likely to rely both on an increase in contact and connection with nature.

Data from eight waves of the MENE survey have been retrospectively analysed for associations between measures of child and adult nature connectedness within families, frequency of nature visits and neighbourhood greenspace, urbanicity, and deprivation (Passmore *et al.*, 2020). It is stated that **“access-wise...nature connectedness is more consistent across demographics where physical access may be compromised” (Passmore *et al.*, 2020)** and that this relative consistency is **demonstrated across socioeconomic and ethnicity groups.** Adult nature connectedness was determined as the only significant

predictor of child's nature connectedness. **Environmental factors such as nature visits were *not* related to nature connectedness, and that in fact, higher levels of neighbourhood green space were related to lower levels of nature connectedness.** An “unexpected” finding was highlighted in **a positive association between neighbourhood deprivation and children's nature connectedness, and this was described as “counter-intuitive” as children from higher-income households spend more time “visiting nature”.** A potential explanation was drawn from wider studies finding that children in deprived areas spend **more time playing outdoors with friends.** The suggestion is that through this there is a potential to engage with the natural world while making dens or collecting the natural objects that they find. A further contributory factor is determined in the fact that children in deprived areas spend time less time using smartphones, and this too represents a predictor of greater nature contact. It is important to acknowledge that mobile digital technology can offer opportunities to support children's engagement with the natural world and to “construct or co-construct knowledge, culture, and identity” (Eckhoff, 2020, p. 113) in outdoor activity. However, when considering issues of deprivation, technology might be understood as equally subject to questions of access alongside green infrastructure (Talaee & Noroozi, 2019).

### *Reflection on the MENE Survey*

The MENE survey is ongoing and changing in line with wider cultural shifts and priorities, and a retrospective overview of findings offer the following key insights. **Most peoples' including children's experience of nature is close to home in green spaces in towns and cities.** People are travelling shorter distances and spending shorter time periods doing so. **Access to a car is identified as a key barrier and there are very few visits taken by public transport.** However, dog owners are more likely to take frequent visits than the rest of the population, and children living in such households are more likely to take visits. The barriers to spending time outside are complex but there are discernible patterns in reasons given. **The most-frequently cited reasons for not engaging with a natural environment are time-related followed by health or age, personal preference and access issues related to place, safety or transport are lowest ranking.** At the time of this report the MENE survey has changed to monthly reporting to monitor behaviour during the Covid-19 pandemic. **An important message that might be taken from the most recent MENE**

**insights include the potential to work within current cultural conditions.** This includes a continuing urbanisation in which there are social injustices in accessing natural environments, but a need also to understand diverse perspectives and understand qualities of experience. The health-promoting impacts of a natural environment are well-evidenced and important to promote, however it is equally important to discern accessible paths through given conditions that starts with people's experiences in them.

A recent mapping of urban greenspace-use in Sheffield from mobile phone GPS data (Mears et al, 2021) highlights visits that tend to be brief, transitory and often as people pass through urban greenspace on their way to another destination. Data gathered from adult app users indicated that:

*“There is a need for equality of access, however there's a fundamental problem of very little time being spent in greenspaces. When the most common trip to urban greenspace is around 0.004% of a typical day, it changes the conversation around access to nature, it needs to be more equal and higher for all.”*

*(Richardson, 2021)*

The GPS study data is suggested to **highlight “an important reality” about some people's everyday (fleeting) engagement with nature which can call for a shift in emphasis onto ‘moments, not minutes’ (Richardson et al., 2021).** This involves an attendance to qualities of experience rather than time duration and a capacity for ‘tuning into and noticing nature’ (The National Trust, 2021). This is interesting to consider in relation to the retrospective review of MENE data according to children's nature connectedness, frequency of nature visits and neighbourhood greenspace (Passmore et al., 2020). A capacity for ‘tuning into’ or ‘noticing nature’ might occur through children's play and exploration outside. To bring a Froebelian perspective to bear the qualities of experience promoted through play are described as “joy, freedom, contentment, inner and outer peace and rest with the world” (Froebel, 1887, p. 55). This might be considered in relation to a “sense of place in nature” (Defra, 2020, p. 7) gained through outdoor play experiences regardless of environmental qualities. A Froebelian holistic perspective emphasises the same life source as equally expressive through humanity and wider life or ‘the environment’, and that the key connection

to be made is between an inner and outer world. Research focused on nature contact, connectedness, wellbeing and their interconnection can offer a contemporary foundation upon which to reconsider the value in such understandings. Perhaps outdoor spaces that can accommodate self-expression through play can be considered equally significant to a sense of self that can accommodate a surrounding world. Contact and connectedness offer a language through which to consider relations that are essentially ongoing and reciprocal.

### 5.3 Unheard Voices

The MENE survey highlights patterns of engagement according to different population groups and associated barriers in accessing natural environments. However, changed measures and the findings these give rise to highlight a need to look more deeply, ask different questions and start to integrate multiple perspectives. An intersectional analysis of data can address multiple factors influential to individual experience, however literature relevant to two specific characteristics highlighted in the MENE survey (Defra, 2020) and wider literature will now be shared.

#### *Ethnicity*

Considering nature access in terms of visits to a natural environment and appreciation of its qualities can mask a more complex social history shaping individual experiences. Awareness is growing of the need to acknowledge a global colonial history and its ongoing impacts (Finney, 2014), to decolonize landscapes (Dang, 2021) and promote environmental justice (Schlosberg, 2007). This history can be understood as influential on relations in local contexts and for racialised and dominant norms to obscure diverse and marginalised cultural identities and experiences (Finney, 2014). Such factors hold the potential to influence child and family engagements with a natural environment through complex social mechanisms shaping their choices and chances. **A recent systematic review of outdoor time and play studies found a negative association between child and parent membership of the minority race or ethnic group and children's outdoor play (Lee *et al.*, 2021).** Conversely, that being part of a dominant racial or ethnic group was positively associated with outdoor play and this was across diverse contexts including being white or Caucasian populations in

western countries and of Chinese ethnicity in China. This broad cross-context review identifies the **need to engage with complex, interlinked social, economic and environmental issues in local contexts and to “better understand the mechanisms through which outdoor play/time opportunities can be optimized for children while paying special attention to varying conditions in which children are born, live, and play”** (Lee *et al.*, 2021, p. 2). Racial inequalities in the USA have been linked with inequalities in children’s access to outdoor play through social risks in home contexts, limited access to care opportunities and state regulations remiss in recognising and addressing this as a health need for children (Scott, 2017). The need to be proactive in addressing a current cultural and social disjuncture impactful on nature access in the UK is given recognition in ‘The Kaleidoscope Report’ (Black Environment Network, 2013). This report identifies ways to improve support for Black, Asian and minority ethnic communities in accessing services from the natural environment and heritage sectors in England. Implications from this are identified in terms of health (Marmot, 2010), social inclusion and educational attainment. **Impactful barriers are highlighted in a disjuncture between service and community priorities, and a lack of knowledge or experience of working with such communities in these sectors.** Opportunities to address this are identified in the role of ‘champions’ in such communities and a need for connective support to social entrepreneurs working in relative isolation in community contexts. A key point raised by the report is that these are not minority groups and that “BAME communities make up 13% (5.4m) of the English population, and now represent the majority of the population (i.e., more than 50%) in a number of large English cities.” (Evison *et al.*, 2013, p. 2). This is a complex issue given the identified health advantages of outdoor activity, but a parallel need to acknowledge diverse experiences, structural inequalities and resist measurement against white norms. The Kaleidoscope Report seeks the potential to work together and “deliver support to those of greatest need in a way that works with and through their local communities” (Evison *et al.*, 2013, p. 2). However, there is space now to ask what these needs are, consider who defines them and integrate multiple priorities.

A qualitative study involving adolescents and young adults living in deprived areas of Sheffield half of whom were from ethnic minorities (Birch & Rishbeth, 2017) revealed urban moments of intimacy with nature that were fleeting and observed from inside or outdoors. Significant experiences were shared that included the sight of a squirrel at a windowsill, the

sunset from a multi-storey car park and the way in which light dappled the pavement when filtered through a leafy canopy. Such moments were described as offering “calm”, “relief” and “peace” and a potential to feel accepted, to offer escape and to help the respondents feel connected to something much bigger. These stories capture illustrations of nature connectedness through contact with nature beyond that identified (in large-scale studies by Defra and others) as a ‘natural environment’ and highlight experiences essentially related to a sense of self and interconnection with the natural world. **Birch asserts that “young people in cities, particularly those who are from ethnic minorities, are largely excluded from debates about how the natural world feeds into mental wellbeing” and that “when their relationships with nature are scrutinised at all, it’s often by lamenting their failure to recognise particular species, or recall words that were once commonly used to describe wildlife and habitats” (Birch, 2020).** What is now called for is attendance to a diversity of experiences and the potential to **learn from the ways in which “nature can help young people feel accepted, offer escape...feel connected to something much bigger” within cities (Birch, 2020).** Young children’s environmental needs may be different from adolescents, but it remains important to consider all “interactions and processes of multiple variables across different levels of socioecological modelling” (Lee *et al.*, 2021).

### *Disability*

Disability is impactful on accessing natural environments (Defra, 2021) despite legislation establishing the right to equality of treatment and a need to act in addressing this (Disability Rights, 2005, The Equalities Act, 2010). Government policy gives recognition to this stating that “those with disabilities have less access to green spaces or tend to use them less.” (Defra, 2011, p. 51) and thereby stand to benefit through promotion of accessible community green spaces. However, **barriers to disabled children’s access to outdoor play and natural environments are multiple and involve not only practical, but also social and cultural dimensions.** It is important here to acknowledge a full range of abilities and disabilities, and not to generalise or be generic in relation to need. However, there are issues pertinent to raise from research in this area and to raise awareness of impactful dominant norms that represent a challenge now to disrupt. Research is required to engage with the “multifarious mind-body-emotional differences which pattern and intersect in all geographies of childhood” (Pyer *et al.*, 2008, p. 3) and address disability as an under-represented area in social studies of

childhood and nature access (von Benzon, 2011). The multiple barriers highlighted in literature include practical challenges to access such as play equipment design or lack of suitable facilities to meet disability needs in children's play areas (von Benzon, 2011, Jeanes and Magee, 2012).

**Non-inclusive social attitudes have also been identified as particularly prevalent in play sites “where young people define and legitimise repressive social hierarchies” (Jeanes and Magee, 2011, p. 194).** Such experiences can be considered reflective of broader contexts (Aitchison, 2003; Petrie & Polland, 1998; Shelley, 2002; Wooley, Armitage, Bishop, Curtis, & Ginsborg, 2006) and **compounding in a process of ‘othering’ (Armstrong, 2003) that can result in “disabled children feeling abnormal and different (Kitchen, 1998)” (Jeanes and Magee, 2011, p. 197).** A vulnerability is suggested to lie often in a lack of peer group for socialising and sharing such experiences with outside of school or within supportive services (von Benzon, 2011). **An increased dependence on adults can act as a barrier through children being subject to adult judgement and mediation of risk (Caprino, 2018, von Benzin, 2011).** Research with 11–16-year-olds with mild–moderate learning disabilities found the environmental opportunities they accessed were largely “highly managed, affording the young people few opportunities for independent exploration of natural environments.” (Von Benzon, 2011, p. 1035). **Trained play workers are important and effective measure in supporting social integration in play spaces (Jeanes and Magee, 2012), however austerity measures have had an adverse effect on funding allocated to favour the inclusion of persons with disabilities (Hauben *et al.*, 2012, Caprino, 2018).** Children's dependence on adult facilitation in family or carer contexts is also illuminated as a marginalising experience for them all (Horton, 2017). It is asserted that:

*“Normative, widely circulated discourses about the value of outdoor, natural play for children overwhelmingly marginalize the experiences of families with disabled children, who can often experience outdoor/natural play as a site of hard work, heartache, dread, resignation and inadequacy.”*

*(Horton, 2017, p. 1152)*

Normative discourses are marginalising to “experiences and playing bodies which ‘do not live up to’ contemporary ideals” (Horton, 2017, p. 1170) and can lead to parent or carer anxieties that foreclose play itself. **Consultation is identified as key in facilitating change and disrupting norms and involves hearing diverse perspectives and voices (von Benzon, 2011, Jeanes and Magee, 2012).** A recent discussion hosted by the RSPB highlighted a need for disability justice and for diverse provision that can be facilitative and inclusive to access for all (RSPB, 2021). There is the potential to make adaptations to outdoor provision that can facilitate inclusion of children with diverse needs (von Benzon, 2011) and consider engagement in multiple ways through use of our broadest capacities for being and doing. It is suggested that considering access in holistic terms can be supportive of nature’s healing capacities for all populations, particularly through attendance to our full scope of sensory experience (Khan, 2021). There are benefits of nature contact through attention recovery (Kaplan, 1989) and stress reduction (Ulrich *et al.*, 1991) that are advantageous to those with a disability alongside others (Chang and Chang, 2018, Chawla, 2015). It is important to highlight that disability is also not a minority issue as one in five of the UK population has a disability.

#### 5.4 Insights from Wales, Scotland and Northern Ireland.

There is not a parallel monitoring of engagement with the natural environment in Wales, Scotland or Northern Ireland currently published. However, the literature search highlighted a focus on children’s access to natural environments in health, education and environmental policy in Wales and Scotland. The search did not reveal any policy specific to Northern Ireland in this regard. **The policy picture in Wales and Scotland demonstrates a concern to address marked health inequalities and the promotion of children’s nature access as part of a policy response.** A review of the recent integration of outdoor learning into national curriculums in several countries (Passy *et al.*, 2019) has drawn upon the concept of ‘flow’ to describe global conditions interconnected through ‘flows of ‘people, ideas, discourses and capital’ (Lewis & Linguard, 2015). The concept of ‘flow’ can be helpful in framing “developments in a world in which policies are frequently ‘borrowed’” and can be considered in relation to an “economistic approach” or a counterbalancing “flow of resistance” (Passy *et al.*, 2019, p. 2). **Three discourses run through current international interest in outdoor learning, and include the promotion of pupil engagement, addressing**

**of health including obesity levels and wellbeing and addressing global health through environmental connection (Passy *et al.*, 2019).** Through complex socioeconomic conditions a rich natural environment is starting to be understood as an important resource. The drive to promote children's nature access through education can be seen as occurring in different international contexts through both 'top down' government-led and 'bottom up' practitioner-influenced approaches. This is suggested to indicate that in a world of increasing complexity "how educational communities are changing" (Passy *et al.*, 2019, p. 13).

#### 5.4.1 Wales

Health inequalities in Wales are outlined according to the following:

*"In terms of years spent in 'good health', those living in the most deprived areas can expect to spend almost two decades less in good health than their counterparts in the least deprived areas. Leading to not only shorter lives for those in deprived areas but living a larger proportion of it in poorer health."* (ONS, 2020, p. 3).

These statistics are not dissimilar to those in England however a focus has been taken in Wales on **small areas of intense multiple deprivation**. Within this child poverty is in focus, as an avenue to addressing health inequalities in ongoing ways. **The Welsh Index of Multiple Deprivation of a Child (2011) is an official measure of this and considers dimensions of income, education, health, community safety, geographical access to services, housing and physical environment (Welsh Government, 2011, p. 3)** and these can appear at higher levels and in greater combination in the lives of some children. Measures of an impactful physical environment include air quality, flood risk score and proximity to waste disposal and industrial sites and are relevant to small areas of Wales in which there are intense levels of multiple child deprivation (Welsh Government, 2011, p. 52). A strategic approach has been adopted in identifying areas of regeneration in greatest need and therefore potential for greatest benefit. This strategy seeks to "link physical and community regeneration with public and private funding, in a programme of change to tackle a range of social and economic issues affecting the most deprived communities" (Welsh Government, 2011). **The national Natural Resources Policy (2020) supports this through prioritising preventative approaches to health outcomes focused on transport related air**

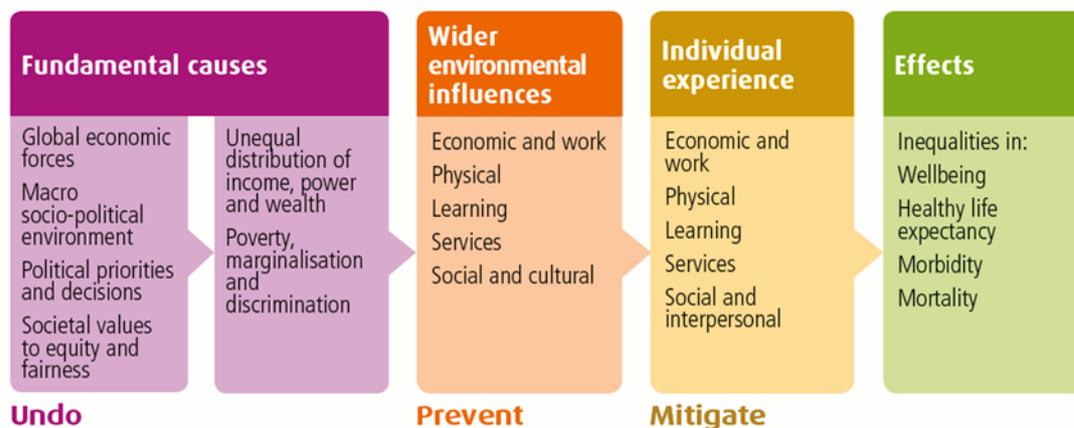
**and noise pollution, tackling physical inactivity and mental health.** An overview of Area Statements highlights South-West Wales as a district with areas of low-income, lower quality housing, education, poor diet, and less access to good quality green space and notably low levels of tree cover in some locations. However, also rich resources in countryside and bathing beaches and solutions in seeking to “support nature-based activities and make the outdoors more accessible to all” (Natural Resources Wales, 2021). **The statement for North-West Wales presents a similar picture in identifying the presence of route networks, parks, gardens, beaches, sea fronts and countryside but that these “are not always located near to where people live or are managed in a way that people of all ages and abilities can access them.”** (Natural Resources Wales, 2021). Opportunities for promoting children’s access to natural environments seem to be embedded within policy seeking ways to creatively connect people to surroundings in everyday life.

Education is identified as means to address child poverty and this is outlined in the ‘Building a Brighter Future Early Years and Childcare Plan’ (DfES, Wales, 2013). This plan draws on The Marmot Review (Marmot, 2010) in highlighting early education as “one of the most effective early intervention strategies to enhance a child’s developmental outcomes” (DfES Wales, 2013, p. 9). The potential for long term benefits is highlighted for those who are disadvantaged through boosting social and cognitive skills as “a better foundation for lasting success at school and beyond.” (DfES Wales, 2013, p. 9). The aim is for ‘closing the gap’ between the most and least disadvantaged and breaking a cycle of deprivation as a preventative measure. **Wainwright (2021) identifies that “in order to engage the people of Wales with the outdoor environment, changes in the curriculum incorporated the outdoors as a part of children’s learning from age three though to fourteen.”** (Wainwright, 2021, p. 567). This can be seen in the Foundation Phase Framework (2015) in an emphasis on the outdoors as an integral part of children’s learning, and a transition into ‘Adventurous Activities’ in the Physical Education curriculum after seven years old (Wainwright, 2021). **The aims of The Foundation Phase Framework (DfES, Wales, 2015) include acquisition of personal and social skills, promotion of physical and mental health and support for a safe home and community in preventing disadvantage by any type of poverty. The framework refers to use of indoor and outdoor environments that can “promote children’s development and natural curiosity to explore and learn through first-hand experiences” and places “a greater emphasis on using the outdoor**

**environment as a resource” (DfES Wales, 2015, p. 3).** The Foundation Phase Curriculum (2015) incorporates use of the outdoors in all seven areas of learning and is influenced by “Scandinavia and the Forest Schools movement, but also from the influence of educational theorists such as Froebel.” (Wainwright, 2021, p. 568)

#### 5.4.2 Scotland

**Similar links between nature access and the addressing of health inequalities can be seen in Scottish government policy.** The following diagram is included to illustrate how health inequalities are considered in terms of fundamental causes that national policy is seeking to mitigate.



Causes of Health Inequalities, NHS Health Scotland (2021)

**There is a focus in Scotland on the promotion of children’s physical activity to address high obesity rates and to addressing an educational attainment gap between children from disadvantaged and advantaged backgrounds (Perlman *et al*, 2020).** Qualities of local places are determined as important in ensuring all children have good opportunities for outdoor play and is supported by the environment and health strategy ‘Good Places, Better Health Initiative’ (Scottish Government, 2008). This has sought to address barriers to children’s outdoor play through pollution, high-speed traffic and less well-maintained green

spaces in disadvantaged areas (NHS Health Scotland, 2020). However, despite policy responses described as “favourable environmental factors believed to influence physical activity and sedentary behavior” (Reilly *et al.*, 2014), health inequalities have remained persistent in Scotland. A global review in the Active Healthy Kids Report Card (Reilly *et al.*, 2014, Hughes *et al.*, 2018) has demonstrated children in Scotland maintaining extremely high levels of recreational screen time and low levels of moderate to vigorous intensity physical activity in international comparisons. This is associated with development into an adult environment where poor diet, low physical activity and overweight or obesity are identified as a norm (Reilly *et al.*, 2014). However, policy response has continued and include recently extended **provision of full time funded early learning and childcare for all 3, 4 and eligible 2-year-olds**. The aims for this include seeking to “improve children’s outcomes and help close the poverty-related attainment gap, increase family resilience through improved health and wellbeing of children and parents and support parents into work, study or training” (Scottish Government, 2021). **Outdoor play is integral to this due to benefits to physical and mental development with an aspiration that “children in Scotland’s ELC sector will soon spend as much time outdoors as they do indoors” (Scottish Government, 2021)**. Guidance for this is offered in the ‘Out to Play’ Practitioner Guidance (Care Inspectorate, 2020) and ‘Space to Grow’ Environmental design guidance (Care Inspectorate, 2020) along with a refreshed early years national curriculum entitled ‘Realising the Ambition’ (Education Scotland, 2020). This curriculum seeks to explore the ‘interactions, experiences and spaces’ supportive to early development and refers to outdoor spaces as supporting learning about the wider world and to having wellbeing benefits. **A focus on outdoor play has been suggested to offer means to accommodate an expansion of numbers in existing settings whilst addressing obesity, reducing screen time, increasing child and parent connection to the environment, and improving mental health (Perlman *et al.*, 2020)**. Research with practitioners at the outset of the change led to identification of potential barriers in parental support, weather and equipment constraints, children’s choices, educator training, funding issues and an adult perception of risks associated with outdoor play (Howe *et al.*, 2020). However, there is evidence of evolving practice that is addressing issues and offering rich grounds for research evidence of potential impacts. Drawing on Passy *et al.* (2019) this evolution in Scottish ELC policy has been described as at the “intersection of a top-down approach that was influenced by a strong bottom-up movement by early adopters of outdoor practice” (Howe *et al.*, 2021, p. 1079). Support for this transition is suggested to rest on

practitioner training, partnership working with parents and highlights the important role played by organisations such as The Froebel Trust.

#### 5.4.3 Northern Ireland

Despite a lack of specific reference in Northern Ireland policy to children's nature access, insight is offered into its early educational curriculum for comparison. **Reference is made in the 'Curricular Guidance in Preschool Education' document (CCEA, 2018) to "creating learning environments, both indoors and outdoors" and that staff should "plan carefully to exploit the unique opportunities their outdoor areas can provide" (CCEA, 2018, p. 11).** Guidance states the importance of ensuring that "outdoor learning happens frequently and is safe, varied and stimulating" (CCEA, 2018, p. 12). However, this suggests less of an emphasis placed on spending time outside than is currently emphasised in Wales and Scotland. The Early Years (0-6) Strategy (2010) identified priorities in the quality of provision, role of parents, equity of access and effective linkages in the delivery of services. An importance is identified in setting early learning "in a much broader context, including socialisation, language and communication, physical development and good health" (CCEA, 2018, p. 2). Given a lack of literature focusing on outdoor learning in Northern Ireland it is difficult to determine either current practice or its relationship to the local context.

## 6. Has Covid-19 Affected Babies' and Young Children's Access to Natural Environments? How?

Research exploring impacts from the lockdown responses taken to the Covid-19 pandemic offer recent insight into young children and family's access to natural environments. This has highlighted barriers to nature access in home contexts and the role played by education and other infrastructure in facilitating opportunities for this in the daily lives of children and families.

## 6.1 Inequalities in Access to Green Open Spaces

An online survey carried out by Natural England sought to understand children and young people's perspectives on nature during the pandemic. The importance of this is highlighted in terms of giving children "a greater stake in and voice about the natural environment" (Defra, 2020). Although this survey is with children older than those in focus in this research, it is included through the insight offered into children's perspectives and family life. When asked about spending time outside during the pandemic 60% of the 501 respondents said they had spent less time outside, 25 % said more and 14% said the same amount of time as before the pandemic. A parallel survey with adults revealed that 45% said they had spent more time outside in lockdown and these results taken together indicate **more adults spending increased time outside than children. Children reported fear of the pandemic as a reason for not going outside** at a rate three times higher than adults envisaged and this highlights the importance of conducting research directly with children. However, although pandemic fear was given as a reason by 48% of children, this was closely followed by 47% who identified **park closure** as a reason. **Parks and private gardens were demonstrated to be a particularly important means for accessing natural environments in 8 – 11-year-olds and parks were identified by 76% of the whole group as their favourite place to play.** Far fewer children had spent time in other natural places such as the seaside (27%), the woods (26%) or wider countryside (24%) and needs to be considered in relation to the travel restrictions taken in response to the pandemic. When asked whether they had spent more or less time outside with friends, by themselves or with family, 81% of children reported that they had spent less time outside with friends and 52% reported that they were less likely to spend time outdoors by themselves whilst 23% reported spending more time outside alone. When asked about time outside with the people that they live with, a higher proportion of children had spent more time outside with people they live with (47%) than less time (36%). **These findings indicate that children were getting outside less overall through fewer opportunities to do so with friends, groups or school, but that some children were getting outside more with the people that they live with.** These results reflect the trend highlighted by the MENE survey which has indicated a decline in children spending time outside without adults present and suggests that the coronavirus may have enhanced this trend.

**There were variations in these patterns across population groups identified in terms of age, income and ethnicity**, and the terms of reference used here reflect those used in reporting. Findings state that children from ethnic minority backgrounds were more likely than white children to say they had spent less time outside with people they live with (51% compared to 31%). It highlights that overall, 71% children from ethnic minority backgrounds reported that they spent less time outside since coronavirus started, compared with 57% of white children. It is also highlighted that 26% of children from ethnic minority backgrounds were part of households that were shielding compared with 16% of white children. **The report identifies children from ethnic minority backgrounds as more likely than white children to visit parks, playing field and playgrounds (66% and 60% respectively), less likely to have private gardens than white children (80% and 91% respectively) and more likely to be living in urban areas (according to the Adults MENE survey, 89% and 68% respectively).** Children from minority backgrounds were therefore more likely to have a limited number of options available to access green and natural spaces and to be more reliant on visiting parks. When asked about access to gardens, nine in ten (88%) children reported that they had access to a private garden with 5% reporting access to a shared garden. **Three quarters (75%) of children from a household with annual income below £17,000 had access to a private garden, compared with 90% for children with a household with annual income of £17,000 or more.** Almost all children with a garden had spent time in it in the previous week, and only 4% reported not doing so. **The survey found that 73% of children from households with an annual income below £17,000 spent less time outdoors, compared with 57% from households with an annual income above £17,000.** Overall, the findings indicated older children spending less time outside than younger children, and more likely to report not being able to go with friends as the reason (43%, compared to 29% for 8–11-year-olds). When asking children about their hopes for the future post-pandemic 70% wanted to spend more time outside with friends, 44% wanted to spend more time outside in general, 32% wanted to spend more time outside with people they live with and 30% wanted to be allowed out more on their own.

These findings can be considered in relation to studies exploring systemic disadvantage in access to green open spaces in lockdown conditions. Shoari, Ezzati, Baumgartner, Malacarne, and Fecht (2020) explored the accessibility and allocation of public parks and gardens in England and Wales through combining national statistics with ordnance survey

data. This study sought to determine numbers of parks, distances of postcodes to nearest park and per-capita space in each park for people living within 1,000m and investigated variability by city and share of flats. **Findings demonstrated that approximately 25.4 million people (~87%) can access public parks or gardens within a ten-minute walk, while 3.8 million residents (~13%) live farther away; of these 21% are children and 13% are elderly.** Areas with a higher share of flats are on average closer to a park but with the potential for overcrowding during periods of high use which could happen in lockdown conditions. **Geary, Wheeler, Lovell, Jepson, Hunter and Rodgers (2021) similarly highlight that one in eight British households have no garden (ONS, 2020; Wolch *et al.*, 2014; House of Commons Communities and Local Government Committee, 2017; Duncan *et al.*, 2020) and that population density in deprived areas with residents of low income give rise to inequalities in accessing open space.**

## 6.2 Benefits of Nature Access in Lockdown Conditions

A survey exploring the psychological impacts of lockdown on UK primary school aged children and families reported changes to children's emotional states and behaviours (Morgül *et al.*, 2020). Caregivers reported boredom (73.8%), loneliness (64.5%) and frustration (61.4%) and **children spending significantly more time using screens, and less time doing physical activity and sleeping. Family coexistence was described as moderately difficult, with more than 30% of caregivers reporting children being more likely to argue, and caregivers reporting levels of distress related to child symptoms.** The importance was highlighted of developing prevention programmes to mitigate the impact of the COVID-19 pandemic on children's and their family's psychological wellbeing (Morgül *et al.*, 2020). **An online survey with the families and carers of children and with physical and intellectual abilities sought perspectives on impacts from lockdown on physical activity and mental health (Theis *et al.*, 2021).** This reported negative impacts on children and young people's physical activity in 61% of respondents and on mental health in 90% of respondents. **This is a group with generally reduced opportunity for such activity through environmental and personal barriers and a loss of access to specialist facilities, therapies and equipment were identified as impactful.** The link between physical activity and mental health has been particularly emphasised in this study through highlighting that "many of the conditions that these individuals have to live with tend to have a negative impact on their mental health"

(Theis *et al.*, 2021, p. 6). Studies from international contexts offer insights into the benefits of going outside during lockdown conditions. An online survey of emotional well-being in Ireland found raised positive affect and reduced negative emotions associated with spending time outdoors in adult respondents (Lades *et al.*, 2020). **Activities relevant to families with greatest affective benefit were identified in exercise, going for walks, gardening, hobbies and taking care of children, whilst home- schooling was described as emotionally demanding.** A review of park closures by paediatricians following instances of overcrowding in USA lockdowns highlighted the importance of preserving access to public lands important for physical and mental health (Razani *et al.*, 2020). The report asserts that **school and child-care closures meant parks could often represent “the only antidote to excessive screen time and sedentariness, which worsen chronic disease” and that “inequities in access to nature will exacerbate the impact park closures will have on health equity and pediatric health” (Razani *et al.*, 2020, p. 1546).** The research emphasised inequitable access to parks and nature for those in low-income areas, and that partnership work between public agencies to ameliorate this” should last into post pandemic days, in support of child health” (Razani *et al.*, 2020, p. 1546) A Canadian study similarly found that children and young people had lower levels of physical activity, less time outside and higher levels of sedentary activity during the outbreak (Moore *et al.*, 2020). A positive association with physical movement was found between parental engagement in physical activity, their support for this in children, and dog ownership. This study echoes others in highlighting the **“immediate collateral consequences” of Covid-19 through adverse impact on children and young people’s movement and play behaviours (Moore *et al.*, 2020, p. 9).** Also, that **this should now guide efforts to promote child health in the recovery period and “inform strategies to mitigate potential harm during future pandemics” (Moore *et al.*, 2020, p. 1).** Findings of a reduced tendency towards physical activity and increased screen time in children through changes to household routines were also found in a public survey in Brazil (Dos Santos Cardoso De Sá *et al.*, 2021).

These studies offer insight into similar impacts from Covid-19 lockdowns on children and families across a global context and findings highlight reduced physical activity and wellbeing impacts. The highlighting of physical activity can be understood as reflective of the home confinement involved in lockdown conditions and evidence has indicated “that people of all ages had significantly reduced levels of physical activity during the COVID-19

pandemic compared to before with subsequent negative impacts on mental health and wellbeing” (Theis *et al.*, 2021, p. 1). Studies highlighted the impacts as mental, emotional and behavioural, and that

*“Psychosocial tolls were associated with unhealthy lifestyle behaviours with a greater proportion of individuals experiencing (i) physical (+15.2%) and social (+71.2%) inactivity, (ii) poor sleep quality (+12.8%), (iii) unhealthy diet behaviours (+10%), and (iv) unemployment (6%).”*

*(Ammar et al., 2021, p. 9)*

**A focus on the benefits of being outside beyond its support for physical activity can be seen in the Natural England survey of children’s perspectives on nature during the pandemic (Defra, 2020).** This found that **eight in ten children interviewed stated that being in nature made them very happy, and that the online survey found 81% of children reporting being happy in nature while only 3% reporting being unhappy.** A correlation was highlighted between children who said being in nature made them very happy and those spending more time outside and more time noticing nature and wildlife (Defra, 2020). Most studies have highlighted the significance of physical activity for health and wellbeing and thereby the importance of having accessible means, reason or a motivation to do so. The Natural England survey however also highlights the benefits of nature access for wellbeing, and this is through sensory interactions with the natural world. **The impact of school closures has highlighted the role educational services can play in promoting nature access. This includes physical activity, wellbeing benefits from nature access and it is identification of such activity as relevant to education that now represents potential grounds for change.**

### 6.3 The Role of Schools in Facilitating Outdoor Access

**A review of mental health problems amongst school-age children during the COVID-19 pandemic in the UK and Ireland identified the role ordinarily played by schools in providing “essential services...outside of education” including opportunities for physical activity in the outdoor natural environment (Rajabi, 2020, p. 293).** This sits alongside the Natural England survey findings in highlighting the role played by education in

promoting children's nature access. Studies exploring nature access through schools and early education highlight barriers and the potential for change, and one of the initial hurdles is determined in access to a natural environment. An evaluation of available open and green space in greater London schools (Shoari *et al.*, 2021) found that 30% of all pupils in London attended schools with less than ten square metres per pupil of open space as the minimum area recommended by DfE. An additional 800,000 pupils attended schools with less than ten square metres per pupil of green space, and of this group, 70% did not have any public parks in the immediate vicinity of their schools. A weak association was identified between the school-level socioeconomic indicator and the amount of open and green space, and this needs to be considered in relation to potential compensatory leisure activities, trips or green infrastructure in home contexts. Measures to address this space deficit are identified in safeguarding school grounds from sales, financial support to schools in areas of social or economic disadvantage and accessing off-site facilities such as shared outdoor space with other schools (Shoari *et al.*, 2021). An evaluation of school-based opportunities for promoting access to nature in England identified trips as means to mitigate for children's declining contact with nature (Walker *et al.*, 2021). Distance between schools and green space can be identified as a limiting factor by schools however the review asserts that most have access to some form of nearby green space. **A more impactful barrier is identified in social and cultural factors within education including a pressure to deliver the National Curriculum and teachers' lack of confidence, training or experience in outdoor learning (Walker *et al.*, 2021).** This aspect is investigated through research exploring ways to develop nature access through educational practice.

The Natural Connections Project (Waite *et al.*, 2016) identified a lack of teacher confidence in teaching outside and fragmented support services as the primary barriers to outdoor learning in schools. These are factors suggested to underpin the "more traditionally cited challenges of curriculum pressures, concern about risks and cost" (Waite *et al.*, 2016, p. 5). The project's trialling of school support for outdoor learning gave rise to benefits identified in pupil lesson enjoyment, nature connection, social skills, health, wellbeing and attainment (Waite *et al.*, 2016). Teachers saw the value of learning in a natural environment for "enabling pupils' wonder and creativity, supporting teaching and learning of particular concepts, and bringing subjects to life" (Waite *et al.*, 2016, p. 9) and confirmed the project's assumption of a latent demand for such activity within schools. **In a review of current**

**outdoor learning in schools internationally, the three most frequently reported forms of outdoor learning currently practised include field studies, early years outdoor activity, and outdoor and adventure education (Waite, 2020).** The purposes identified for such activity included support for environmental awareness and pupil health and well-being (Waite, 2020). Although early years practice can support young children's access to outdoor learning, the qualities of experience in can be varied. A recent survey of outdoor provision for babies and toddlers in one English county found examples of good practice but a picture of overall county provision that was patchy (Josephidou *et al.*, 2021). A concern is raised that although education can offer a means to ameliorate for children's nature access particularly in areas of high deprivation (Malone & Waite, 2016) that early years settings can lay foundations for a continuing inequality. This is since children's nature access can depend on the "vision or understanding of pedagogy" (Josephidou *et al.*, 2021, p. 14) in a setting that a child is able to attend. **Support for equitable nature access is identified in a strong educational policy driver and research that can prevent "certain pedagogies, such as engagement with nature, to lay dormant" (Josephidou *et al.*, 2021, p. 14).** It is highlighted that:

*"The absence [of outdoor learning] from key policy documentation is not neutral in its effects but in neoliberal contexts of instrumental education, can effectively serve to excise vital experiences from children's lives."*

*(Malone & Waite, 2016, p. 31)*

**Such pedagogies can illuminate not only the importance of outdoor access to support children's physical activity, but also sensory engagement with natural elements that can involve equal emphasis on 'being' and doing. Such activity can support nature access for children of all ages and abilities and the potential to enhance the wellbeing of children and environment through ongoing relations.**

Government support for nature access through education can be seen in a **new draft Sustainability & Climate Change Strategy (DfE, 2021)** which maps "urgent action to coordinate activity to respond and adapt to the effects of climate change" (DfE, 2021, p. 4). A central element is identified in "Learning from and Connecting with Nature" with the rationale that **"creating an environment from an early age where we are able to connect to nature is essential for self-enforcement in protecting and valuing nature"** (Defra,

**2021, p. 6).** Plans are mapped out for progression over the next four years and include sharing effective, evidence-based climate education, the introduction of virtual resources, evaluation of a biophilic primary school including the effects of green infrastructure on pupil wellbeing and support for active travel to school. There is the potential for additional support for this shift in education evidenced in the government spending review which pinpoints investment in evidence-based approaches to tackle lost learning through the pandemic, holiday activity for disadvantaged children and improved access to urban green space and community sports facilities (UK Government, 2021). The following commentary highlights the potential significance of this funding in addressing not only recent pandemic-related losses but longer-term issues in which there can be impactful inequalities.

*“After a decade when hours of PE and the resourcing of school sport have fallen, fewer than half the young people in England achieve the Chief Medical Officer’s recommended 60 active minutes a day, and when the consequences of the pandemic have accelerated a decline in wellbeing, there is an urgent need for ambitious national targets and an associated strategy to drive up physical activity levels.”*

*(The Youth Sports Trust, 2021)*

New funding of £208 million is being allocated to supporting early years education, childcare and family services to take effect by 2024-25. These measures demonstrate support for nature access in education when considered as both contact and connection and provide a backdrop for reviewing recent examples of the ways this has been promoted through examples of early years practice. This review is informed by consideration of early years practice with historical influence from Froebelian holistic philosophy, and the assertion that both pedagogy and policy are important in the promotion of an equality of nature access through education (Josephidou *et al.*, 2021).

## 7. What Solutions Have Enabled Children to Overcome Barriers to Access Through Early Childhood Education and Care Provision (ECEC)?

Early education is well positioned to support young children's nature access through existing principles and practices as identified by Waite (2020). This can be considered in terms of a curriculum oriented to young children's active learning and access offered to outdoor provision as an integral aspect of daily practice. However, **very little current research identifies the role that ECEC can play in addressing social inequalities in young children's access to natural environments in their home contexts.** This report includes some examples of research in which this is identified, but also examples of research focusing on children's nature contact and connection through ECEC for different reasons. Recent literature offers evidence of three main ways in which children's access to a natural environment is currently facilitated through ECEC. This is through the 'naturalising' of existing outdoor spaces in early years settings, trips to natural environments and the establishment of new provision based in a natural environment. The research highlights multiple aspects of learning that such activity can support, including the child's learning and development as well as ecological perspectives highlighting the interconnection of this with wider life. The latter is motivated by current planetary conditions and a need determined for an education towards sustainable development (UN, 2015). **It is important now to consider how an education for sustainable development can acknowledge and work with impacts from the living contexts of some UK families. Sustainable development highlights the need to align social, economic and environmental needs and to consider the ways in which immediate experiences are interconnected with global conditions. The complex cultural and environmental barriers to children's access to natural environments can be considered equally relevant to education as the wider context.** The potential for shift might involve a reflection on what is considered 'in' or "outside of education" (Rajabi, 2020, p. 293) and whether a 'healthy education' might be understood in terms of its interconnection with wider life.

## 7.1 The Naturalising of Outdoor Spaces in Early Years Provision

**Literature from international contexts offer examples of outdoor learning environments for young children that have been developed to include more natural elements or to be ‘naturalised’ (Moore & Cosco, 2014).** As stated however, there appears to be limited identification of the role such provision can play in addressing inequalities in children’s access to natural environments. **Where found, this is linked to policy drivers and the potential role of education to promote children’s health and address wider issues.** Examples include improvement of access to natural elements in ECEC settings to address childhood obesity as highlighted in the ‘Preventing Obesity by Design’ model (Moore & Cosco, 2014). This is described as a socio-bio-ecological “one health” early education approach aiming to increase physical activity and time outdoors through quality outdoor learning provision (Moore & Cosco, 2014). The approach is not ostensibly aimed at addressing inequalities in children’s access to nature, but to offer a comprehensive strategy that holds the potential to address a high obesity rate in North Carolina. This has been focused on early childcare as “a strong predictor of physical activity (Finn, Johannsen and Specker, 2002)” (Moore & Cosco, 2014, p. 170), and draws upon the multiple identified health effects of green environments in supporting an intervention through naturalization. It is hoped that this exploration of local ecosystem exposure in the first years of life can form the basis for the development of a longer-term "one health" strategy. There are various definitions of ‘one health’ but all orient to the goal of “optimizing the health of people, animals, and the environment” through a prevention-oriented approach concerned with activity at local, national and global scale and can be considered holistic (Barrett and Osofsky, 2013, p. 365). Further commentary on a USA context is offered by Cooper (2015) who identifies that despite growing evidence that outdoor learning environments with “diverse natural elements” can be supportive to the healthy development and wellbeing of young children, this remains “virtually unmentioned in national and state level standards, guidelines, and regulations” (Cooper, 2015, p. 85). Such an observation might equally be applied to England, Wales and Northern Ireland, however Scotland’s ‘Space to Grow’ document specifies that outdoor environments should be “rich in a mix of surfaces, textures and different spaces” and identifies outdoor play’s positive effect on children’s “health, wellbeing, learning and development” (Scottish Government, 2017). **The value in making this specification is outlined in the fact that the “children most likely to benefit from an outdoor play and learning environment are less likely to have access to one” (Cooper,**

**2015, p. 85) and that policy continues to “underutilize the outdoor learning environment and nature inquiry” (Cooper, 2015, p. 94).** A more recent assessment of USA ‘schoolyard greening’ for generating positive physical activity and socioemotional health is explicit in linking this with the potential to “reduce the health equity gaps and improve children’s health regardless of their backgrounds or neighborhood socioeconomic status” (Bikomeye *et al.*, 2021, p. 534). These examples demonstrate the promotion of children’s access to natural environments through ECEC pursued through demonstration of its support for multidimensional needs. Most immediately, this is in the addressing of current public health issues but there is the potential though this to align human with environmental health needs.

**Developing outdoor educational spaces to include a greater degree of natural elements can be seen to benefit from a collaborative approach in its implementation (Moore & Cosco, 2014, Bates, 2020).** This can be between staff, parents, wider community and children and demonstrates that this involves a cultural as well as environmental shift. However, through such processes there can be demonstrated an impetus towards change not only from adult agendas, but also through child-led engagement and environmental influence. An example of this is given in is the transformation of outdoor spaces in a UK primary school through a collaborative approach between children and adults. It was identified at the outset that “feelings about children’s access to and engagement with nature are entangled with cultures of protection and surveillance” (Bates, 2020, p. 364). However, that **through changes to the environment and children’s engagement with this, a shift was created in staff from a culture of protection to a culture of resilience. Through this, children were given greater freedom outdoors and adults “embraced risk and danger as essential ingredients of a healthy childhood” (Bates, 2020).** This research limits its focus to the school context rather than impacts on families or communities but does highlight the connections made by children who

*“Spoke about their own, more personal, connections to the garden – the way a certain song played in their head, or time spent at an allotment with a grandparent, illuminating how being outdoors can trigger memories and experiences that might allow the children to shape their own childhoods and relationships with nature.”*

*(Bates, 2020, p. 371)*

A further example of UK research focused on child-led planning of outdoor provision demonstrated that this too led to a greater presence of natural elements which could facilitate children's active, exploratory and creative engagement (Ward, 2018). This research reiterated that:

*“Playspaces available to children in schools and early childhood settings do not reflect what children really want. The way many playspaces are designed reflect more of a concern for safety and supervision rather than children's need for activity in, and interaction with, the natural world.”*

*(Ward, 2018, p. 42)*

Such research highlights that access to natural environments for children can apply to education as well as outside of it: being a baby or child is a social justice issue, and it is one to which adults are called to respond. A further example of research demonstrates how **a child-led impetus for nature contact can occur in everyday ways and through given conditions**. This was in a study with children between three to five years old at an Australian childcare centre who were asked what they did to relax. The findings highlighted **children articulating preferences for “sensory-rich experiences” and that “common places for relaxation were in nature or at home, and various types of play were central” (Cooke, 2020, p. 1)**. This simple, accessible route to promoting children's nature access is linked to the importance of “affording children agency to choose experiences that are relaxing when in childcare settings” (*ibid.*, p.1). A Froebelian understanding of pedagogical relations between adult and child as mutually supportive to a ‘living development’ might be important to consider here. The children in these research examples demonstrated a potential to draw adult attention to golden opportunities in their surroundings, and that nature access does not only consist of contact with a natural environment. **Young children's size can highlight that their need for ‘nature’ can be at small-scale and that a potential for avenues of nature contact and connection can lie within “moments not minutes” (Richardson, 2020)**. Froebel's holistic pedagogy emphasises that nature contact, and connection can occur through all activities, including experiences in a natural environment as well as indoor play with the world's materials, forms and relations. This relational pedagogy can draw adult attention back to our given conditions and through children's fresh eyes and ways of being, an awareness of the ways in which nature is expressed in and through them.

## 7.2 Trips to a Natural Environment

The second way in which literature demonstrates early educational support for children's access to natural environments is through trips to 'green or blue spaces' such as woodlands, forests, parks, farms, allotments and beaches (Boyd, 2019). The role of a trip outside of an educational context can hold important implications. It has been identified that historically, early childhood settings have been situated within 'a place' and terms have been used such as "nursery, pre-school, kindergarten but always with the notion that this 'place' was a safe, secure and enriched environment" (Boyd, 2019, p. 984). However, Boyd offers an overview of ECE settings that use "“action based” place-based learning as a crucial pedagogical practice for early childhood education for sustainability (Ekes)” (Boyd, 2019, p. 984). The majority of these followed a forest school philosophy and involved “frequent and regular sessions in a natural area over a long period of time” and considered the surrounding community as “part of the contextual interconnecting web of place” (Boyd, 2019, p. 984). It was found that most **children showed a growing awareness and love for the place visited and this included both animate and in-animate aspects, and that adults also became “more aware of local critical issues and related them to their own reality.” (Boyd, 2019, p. 983).** This activity demonstrates not only the potential for ECEC to promote children's access to natural environments, but equally for its value to be considered supportive to adults and the places to which they relate. Much recent UK research on children's nature contact through ECEC has evaluated a growth of interest in forest school. Forest school is underpinned by an educational philosophy alternative to mainstream education and can position it in a position of alterity. It has been evaluated as offering experiences valuable to children's wellbeing (Tiplady & Menter, 2021, McArdle, 2018), supportive to holistic learning (Coates & Pimlott-Wilson, 2019), and offer “a space of divergence and freedoms” with a “discontinuity from everyday experience” (Waite & Goodenough, 2018, p. 25). Such experience has been suggested to counteract an “institutionalisation” but equally to offer “skills in children that are valued by neoliberal states” (Pimlott-Wilson & Coates, 2019, p. 268). The educational context surrounding such evaluations concerns a debate about what can be considered as “valuable learning” (Pimlott-Wilson & Coates, 2019, p. 268). This can raise questions about an education children need to step outside of to “take what they need” for

wellbeing (Tiplady & Menter, 2021, p. 99) or to feel connected to a wider life of which they and their education is a part.

**Visits to natural environments outside of educational contexts have been described according to a complementary or compensatory agenda (Harju *et al.*, 2020).** A complementary agenda describes **experiences additional to standard provision, and a compensatory agenda as making up for something judged to be amiss.** Such considerations have been used in research exploring a **Swedish mobile preschool service that uses buses to transport children to different locations.** The service was introduced to mitigate for a lack of space in existing preschools but became popular though its potential to facilitate outdoor learning. Preferred locations for visits were to forests and woodlands, and this choice was linked to “a culturally rooted understanding of nature as a ‘good’ place for children” (Harju *et al.*, 2020, p. 242). The insights offered through this qualitative research highlighted the potential for compensatory ideas to become “especially vivid when it comes to migrant children who live in multi-ethnic neighbourhoods” (Harju *et al.*, 2020, p. 242). **The study found that a ‘freedom and agency’ associated with education in nature could be “reserved for children who already have the right kind of cultural background and language” and that children could be positioned as ‘other’ and through this become “more likely to receive an education aiming to compensate for something perceived as missing – that is, the ‘right’ kind of capital regarding ‘nature’ “(Harju *et al.*, 2020, p. 242).** Although the study highlights a practical solution for promoting children’s nature access it is consciousness-raising about the cultural conditions in which this occurs. Although the research context might be considered culturally specific, the study highlights the **importance of considering nature as a place “negotiated and constructed through interrelations and interaction beyond its particular geographic borders (Massey, 1994, 2005; Taylor, 2013)” (Harju *et al.*, 2020, p. 249).** **The potential otherwise is for the maintenance of a cultural continuity that can “deny children’s real-world relationships (Taylor, 2013)” and position some children as ‘other’ or ‘different’ (Harju *et al.*, 2020, p. 249).** The literature evaluating a growth in UK forest school highlights the potential for systemic disadvantage in access through educational contexts. Research exploring primary school leader perspectives highlighted its perception according to a compensatory or complementary role, and for this to be influential on whether forest school was offered (Kemp & Pagden, 2019). One leader described forest school as a form of ‘respite’ for high

achieving pupils and offered the following description: “we don’t have an ethnic mix, we don’t have any children with complex needs on the SEN register, we don’t have any behavioural problems and we don’t have anybody on the pupil premium register” (Kemp & Pagden, 2019, p. 496). The same influence might also be seen in what might be considered the opposite circumstances in which a leader of a school in special measures stated that the “extreme pressure that the school is under to perform...means that engagement with Forest School is felt to pose too much of a ‘risk’” (Kemp & Pagden, 2019, p. 495). The article highlights that forest school is better established in early years practice through better alignment of educational values, but if settings form part of a school this highlights educational tensions that can continue to contribute to an inequality of nature access through education. Such research makes awareness of the value of nature access in supporting holistic health important and to be considered in ongoing debates about what constitutes ‘valuable learning’.

### 7.3 Nature as a Therapeutic Intervention

**The benefit of natural environments for wellbeing and social relations can lead to promotion of children’s access for therapeutic reasons** (Ward *et al*, 2019). This is given recognition in the UK policy ‘A Green Future’ (Defra, 2018) which promotes increased use of nature based outdoor learning and wellbeing models. Access to such services however can rely on the identification of a problem according to expectations of normative behaviour. Such opportunities therefore can be associated with an agenda to promote better ‘fit’ with wider existing systems and to pathologize to some extent those that access them as deficit. Such access to a natural environment can hold questions about **who has therapeutic needs and who doesn’t**, and educational provision in which such needs cannot be met. This route can offer limited access to younger children through the potential for early education to accommodate broader learning needs, and long referral processes. **Such activity does not represent equality of nature access through education, but the continuation of a complementary or compensatory model.** However, there is an example in literature of a more universal approach to the promotion of young children’s access to natural environments for therapeutic needs. This is a programme of outdoor creative family play sessions offered in connection with an Australian primary school which were free and aimed to ‘develop strong and creative family connections and support mental and physical health and well-being’

(Ward *et al.*, 2019, p. 270). This research explored parent perspectives on sessions and identified impacts through **improved interpersonal relations in the family and between session participants. Parents valued spending time in nature with their children and described an experience of calm, moments of mindfulness and that they engaged more in nature play beyond the program.** These might be considered interconnected social and environmental benefits with ongoing relational effect, and a therapeutic intervention of relevance to all. A further example of a family involvement strategy is outlined in ‘Play & Grow’ sessions in Hong Kong which aimed to promote healthy dietary habits and playtime routines through adult education and ‘connectedness to nature’ experiences (Sobko *et al.*, 2017). The study found positive impacts on diet but a need for further activity to support children’s physical activity and parents suggested a play group in which to engage children in nature-related activity. **Therapeutic engagement with a natural environment demonstrates its value for socially connective behaviours, and this might be considered beneficial at multiple scales of community development (Defra, 2016). This highlights the value of ECEC as a route to equality of nature access, as a service positioned in community contexts and connective between children, families, nature, community, culture and society (The Froebel Trust, 2021) \*.**

#### 7.4 The Establishment of New Early Educational Provision Based in a Natural Environment.

**There are examples of recent early years provision that have been set up to run from a natural environment and to focus on outdoor learning. Such provision shifts emphasis away from indoor spaces, established educational infrastructures and towards learning with wider life.** Examples include provision set up in a wildlife sanctuary in a USA city park in which most of the time is spent outside where children are “immersed in the natural world” doing “in-nature” activities with staff who have environmental expertise (Ashmann, 2018). The provision is described as successful from ‘multiple perspectives’ and this includes meeting academic expectations, the promotion of physical, social and emotional skills and an increased appreciation of the natural world as identified by parents. A further example of research illuminates a child’s experience in a nature preschool and describes a transition between an aversion to and affinity with nature. This is suggested to have been facilitated by **direct contact with nature, peer interactions and mediation of experiences by adults**

**with expertise and experience in early childhood and environmental education (Kharod & Arreguin-Anderson, 2018). A further example is also offered of the establishment of a nature kindergarten in Australia as part of its public school system (Elliot & Krusekopf, 2018). This investigated a collaborative approach in aligning its activity with the environment and local communities and drew upon Aboriginal narrative and histories in establishing its outdoor educational experiences. The success of this process has led to a second nature kindergarten now being established in the public school system and points the way for shift to occur through aligning social, cultural and environmental relations.**

### 7.5 Gaps in Current Literature

The examples of ECEC that promote children's access to a natural environment offer an overview of that highlighted in a literature search. However, this does not appear to reflect the broader examples of current ECEC provision and suggests that research is not currently reflective of practice. There are examples of UK early years provision running from outdoor contexts such as forest and beach school settings, and fully outdoor nursery settings such as Boldon Nursery School. The recent shift in Scottish policy is giving rise to an increased establishment of outdoor ECEC provision, and it is likely that evidence of this will emerge in published research. There are also examples of third sector, voluntary or independent outdoor provision offering opportunities for early years settings to access such as NECA Community Garden in South Shields. This review therefore does not offer a comprehensive overview of practice but some indication of the ways in which this issue is currently represented in current research. **Current gaps in literature are therefore illuminated in exploring the role ECEC can play in promoting children's nature access and for this to fulfil an important role in addressing not only inequalities in access to a natural environment, but wider social and environmental needs.**

## 8. Conclusions

### Children's Nature Contact and Connection.

This review has demonstrated that consideration of nature 'access' is changing in the process of its exploration. Access has primarily been considered as 'contact' with green open spaces and this has highlighted barriers to such experiences and associated social inequalities. However, current research into the relationship between nature contact and a psychological state of 'nature connection' is suggesting that this is not necessarily linked to experiences within a designated environment. Instead, it is highlighting the importance of sensory responses to aspects of the natural world within current conditions, and this change in terms of reference is shifting research insights as an integral aspect of a cultural nature connection process. **Research exploring children's access to a natural environment highlights the impact from multiple dimensions of deprivation which include environments in which there is reduced access to green space, increased environmental pollution and risks to children.** Time is highlighted as an access issue, and this is due to children's increased dependence on adults for outdoor play due to such risks. **Time availability is one of the most frequently cited reasons for not taking visits to a natural environment and it is highlighted that those on a low income can have long, anti-social working hours and wider responsibilities that can be impactful. Practical barriers include transport and there is less car ownership in low-income populations and large-scale studies have highlighted that very few visits to a natural environment are made by public transport.** Given these barriers, local accessible green space is identified as key in promoting nature access, however that those most in need of such opportunities are least likely to have them. Individual preference is also identified as a reason for not visiting a natural environment, however it is important to consider that this cannot really be separated from wider influential factors. A demographic analysis of large-scale survey findings has highlighted patterns in behaviour by different populations and this has raised awareness of the need for further questions. **It is important now to look beyond an agenda to promote nature contact for its health benefits and to consider the complex socio-cultural-historical-environmental reasons underpinning current behaviours. Integral to this is a need to become more conscious of dominant cultural norms that may have 'minoritized' some populations. Although some social groups have been described as 'minority' these are far from this in number, and it is important now to hear and integrate diverse needs and**

**perspectives.** An intersectional analysis can attend to the multiple factors influential on individual experience, however the discrete characteristics of ethnicity and disability are currently highlighted as important to explore in promoting equal nature access. **What is perhaps interesting to consider is children as a minoritized voice, and this is through research engaging directly with children’s perspectives. Such research has illuminated children’s potential to influence adults into re-evaluating the benefits of risky play and a capacity to draw adult attention to the sensory qualities of natural elements in surroundings.** Nature contact can occur through appreciation of the softness of a patch of grass, the changing shapes of clouds on our imaginative response or the thrill of air rushing past ears as we explore our own movement. **Such insights offer illumination of connective pathways through current conditions and highlight the natural world as present within us and our surroundings.**

### Current Educational Opportunities

Research exploring impacts from lockdown responses taken to the Covid-19 pandemic are highlighting inequalities in children’s nature access and impacts on short- and long-term health. The closure of education and community services highlights the significance of social infrastructures in supporting families and their multiple functions through both social and environmental relations. Outdoor activity offers a valuable means for addressing impacts on children’s growth and development through lockdown conditions, with education and community services identified as an important means to promote this. However, recent literature highlights challenges to education in meeting this need through restricted access to green space and a long-standing emphasis on indoor learning to support cognitive development. The foundation stage is one of the main educational avenues through which children’s nature access is currently promoted and this is due to outdoor provision forming an integral aspect of practice. However recent research highlights a continuing inequality of nature access through this due to the wide variety of pedagogical influence shaping current early years practice. **Both policy and pedagogy are important now for promoting equality of nature access through education, and this is through supporting understanding of this as integral to educational purpose. There is limited evidence in current literature of early years practice focused on addressing social injustices in children’s nature access, and where found, it can be linked to health promotion policy.** However, there are examples of nature access for broad learning reasons, and this is in environments that are

both in and outside of existing educational provision. Research focused on change highlights the significance of social and environmental relations, and not only for collaboration to be important to change processes but also for nature contact to be supportive to social relations. However, there are also warnings in literature about positioning nature access as alternative to the focus of education which can then be associated with a ‘complimentary’ or ‘compensatory’ agenda. This can maintain continuation of cultural ‘othering’ processes through which nature access becomes associated with relationships to identified norms. **Instead, there is the potential to consider nature contact as therapeutic at whole scale, and as supportive to connective relations that are environmental and social.** This report draws on a Froebelian perspective and identifies its alignment with current educational needs. This is through an underpinning holistic philosophy that envisions all social and environmental relations in continuity and understands learning across the lifespan and through multiple connections. Centrally, such relations are between the ‘inner world’ of each individual and that considered as outer to which there can be contact, ‘connection’ and the potential for a sense of belonging. Froebel’s holistic philosophy has been influential within the historical development of early education at global scale and many of Froebel’s original kindergarten activities remain present in contemporary early years practice in adapted forms. **A contemporary reconnection of early years principles with an originating holistic logic may now offer a means to support human-environment relations in local contexts but with significance at global scale.**

## References

Aarts, M. J., Wendel-Vos, W., van Oers, H. A. M., van de Goor, I. A. M., Schuit, A. J., (2010). ‘Environmental determinants of outdoor play in children: A large-scale cross-sectional study’, *American Journal of Preventive Medicine*, 39(3), pp. 212-219.

Abel, G, Barclay, M, Payne, R (2016) ‘Adjusted indices of multiple deprivation to enable comparisons within and between constituent countries of the UK including an illustration using mortality rates’, *BMJ Open* 6(11): e012750. Available at: [Adjusted indices of multiple deprivation to enable comparisons within and between constituent countries of the UK including an illustration using mortality rates | BMJ Open](#) Accessed on: 23.12.21.

Arts, K., van der Wal, R & Adams, W (2015) ‘Digital technology and the conservation of nature’, *Ambio*, 44, pp. 661–673.

Aubert, S., Barnes, J. D., Abdeta, C., Abi Nader, P., Adeniyi, A. F., Aguilar-Farias, N., Andrade Tenesaca, D. S., Bhawra, J., Brazo-Sayavera, J., Cardon, G., Chang, C., Delisle Nyström, C., Demetriou, Y., Draper, C. E., Edwards, L., Emeljanovas, A., Gába, A., Galaviz, K. I., González, S. A., Herrera-Cuenca, M., Huang, W. Y., Ibrahim, I. A., Jürimäe, J., Kämpfi, K., Katapally, T. R., Katewongsa, P., Katzmarzyk, P. T., Khan, A., Korcz, A., Kim, Y. S., Lambert, E., Lee, E., Löf, M., Loney, T., López-Taylor, J., Liu, Y., Makaza, D., Manyanga, T., Mileva, B., Morrison, S. A., Mota, J., Nyawornota, V. K., Ocansey, R., Reilly, J. J., Roman-Viñas, B., Silva, D. A. S., Saonnam, P., Scriven, J., Seghers, J., Schranz, N., Skovgaard, T., Smith, M., Standage, M., Starc, G., Stratton, G., Subedi, N., Takken, T., Tammelin, T., Tanaka, C., Thivel, D., Tladi, D., Tyler, R., Uddin, R., Williams, A., Wong, S. H., Wu, C., Zembura, P., & Tremblay, M. S. (2018) ‘Global Matrix 3.0 Physical Activity Report Card Grades for Children and Youth: Results and Analysis From 49 Countries’, *Journal of Physical Activity and Health*, 15(s2), S251-S273. Retrieved Sep 30, 2021.

Barrett, M. and Osofsky, (2013) ‘One Health: Interdependence of People, Other Species, and the Planet’, in Katz, D. L., Elmore, J. G., Wild, D. M. G., and S. C. Lucan (eds.) *Jekel’s Epidemiology, Biostatistics, Preventive Medicine, and Public Health* (4th ed.). Philadelphia: Elsevier. pp. 364-377.

Bates, C., (2020) ‘Rewilding education? Exploring an imagined and experienced outdoor learning space’, *Children's Geographies*, 18(3), pp. 1-19.

Bell, S.; Thompson, C. W.; Travlou, P. (2003) ‘Contested views of freedom and control: Children, teenagers and urban fringe woodlands in Central Scotland’, *Urban Forestry & Urban Greening*, [s. l.], v. 2, n. 2, pp. 87–100.

Birch, J (2020) ‘Nature doesn’t judge you’: how young people in cities feel about the natural world’, Available at: <https://theconversation.com/nature-doesnt-judge-you-how-young-people-in-cities-feel-about-the-natural-world-148848> Accessed on: 30.9.21.

Brehony, K. (2009) ‘Transforming theories of childhood and early childhood education: child study and the empirical assault on Froebelian rationalism’ *Paedagogica Historica*, 45:4-5, pp 585-604.

Caprino, F (2017) ‘When the risk is worth it: the inclusion of children with disabilities in free risky play’ *Today’s Children, Tomorrow’s Parents*, pp. 40-47. Available at: [\(40\) Francesca Caprino | National Institute of Documentation, Innovation and Educational Research, Indire - Academia.edu](#) Accessed on: 20.12.21.

Care Inspectorate Scotland (2016) Available at: <https://www.gov.scot/binaries/content/documents/govscot/publications/strategy-plan/2017/10/blueprint-2020-expansion-early-learning-childcare-scotland-quality-action-plan/documents/00526782-pdf/00526782-pdf/govscot%3Adocument/00526782.pdf> Accessed on: 30.9.21.

Christiansen, A., Hannan, S., Anderson, K., Coxon, L., Fargher, D (2018) ‘Place-based nature kindergarten in Victoria, Australia: No tools, no toys, no art supplies’, *Journal of Outdoor and Environmental Education*, 21(1), pp. 61-75.

Cooke, E, Thorpe, K, Clarke, A, Houen, S, Oakes, C and Staton, S (2020) ““Lie in the grass, the soft grass”: Relaxation accounts of young children attending childcare’, *Children and Youth Services Review*, Volume 109, pp. 1 – 8.

Cooper, A (2015) ‘Nature and the Outdoor Learning Environment: The Forgotten Resource in Early Childhood Education’, *International Journal of Early Childhood Environmental Education*, 3:1, pp. 85-97.

Cregen-Reid, V (2021) Modern life offers children almost everything they need, except daylight. Available at: <https://theconversation.com/modern-life-offers-children-almost-everything-they-need-except-daylight-106374>. Accessed on 30.9.21.

DEFRA (2011) The Natural Choice: Securing the value of nature (UK) [The natural choice: securing the value of nature - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/publications/the-natural-choice-securing-the-value-of-nature) Accessed on: 30.9.21.

DEFRA (2018) 25 Year Environment Plan (UK) <https://www.gov.uk/government/publications/25-year-environment-plan> Accessed on: 30.9.21.

DEFRA (2019) 'Local greenspaces important for children of all ages and backgrounds' Available at: [Local greenspaces important for children of all ages and backgrounds - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/publications/local-greenspaces-important-for-children-of-all-ages-and-backgrounds) Accessed on: 20.12.21.

Department for Education and Skills, Welsh Government (2013) Building a Brighter Future: Early Years and Childcare Plan. Available at: <https://dera.ioe.ac.uk/18045/1/130716-building-brighter-future-en.pdf> Accessed on: 25.11.21.

Department for Education and Skills, Welsh Government (2015) Foundation Phase Framework (Revised 2015). Available at: <https://gov.wales/sites/default/files/publications/2018-02/foundation-phase-framework-revised-2015.pdf> Accessed on: 25.11.21.

DLUHC (2019) Guidance: Natural environment. Explains key issues in implementing policy to protect and enhance the natural environment, including local requirements. Available at: <https://www.gov.uk/guidance/natural-environment> Accessed on: 30.9.21.

DfID (2010) Fair society, healthy lives: strategic review of health inequalities in England post-2010. [Fair society, healthy lives : the Marmot Review : strategic review of health inequalities in England post-2010. - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/publications/fair-society-healthy-lives-the-marmot-review-strategic-review-of-health-inequalities-in-england-post-2010). Accessed on: 30.9.21.

Eckhoff, A (2017) 'Images of Play Experiences through a Child's Lens: An Exploration of Play and Digital Media with Young Children', *International Journal of Early Childhood*, [s.l.], v. 49, n. 1, pp. 113–129.

Edwards-Jones, A, Waite, S & Passy, R (2018) 'Falling into LINE: school strategies for overcoming challenges associated with learning in natural environments (LINE)', *Education 3-13*, 46:1, pp. 49-63.

Environmental Rights Centre for Scotland (2021) <https://www.ercs.scot/our-work/> Accessed on: 30.9.21.

Ernst, J (2014) 'Early childhood educators' use of natural outdoor settings as learning environments: an exploratory study of beliefs, practices, and barriers', *Environmental Education Research*, 20(6), pp. 735-752.

Ernst, J and Burcak, F, (2019). 'Young children's contributions to sustainability: The influence of nature play on curiosity, executive function skills, creative thinking, and resilience', *Sustainability*, 11(15), pp. 1 – 22.

Ernst, J and Tornabene, L (2012) 'Preservice Early Childhood Educators' Perceptions of Outdoor Settings as Learning Environments', *Environmental Education Research*, 18: 5 pp. 643-664.

Evison, S., Friel, J., Burt J. & Preston S. (2013) 'Kaleidoscope: Improving support for Black, Asian and Minority Ethnic communities to access services from the natural environment and heritage sectors', Natural England Commissioned Reports, Number 127. Available at: [Kaleidoscope: Improving support for black, Asian and ethnic communities to access services from the natural environment and heritage sectors - NECR127 \(naturalengland.org.uk\)](https://www.naturalengland.org.uk/NECR127) Accessed on: 20.12.21.

Finney, C (2014) *Black Faces, White Spaces: Reimagining the Relationship of African Americans to the Great Outdoors*, North Carolina: The University of North Carolina Press.

Fleer, M & Hedegaard, M (2010). *Early Learning and Development: Cultural-Historical Concepts in Play*. Cambridge: Cambridge University Press.

Flouri, E, Midouhas, E and Joshi, H (2014) 'The role of urban neighbourhood green space in children's emotional and behavioural resilience', *Journal of Environmental Psychology*, Volume 40, pp. 179-186.

Froebel, F. (1887) *The Education of Man*, (Translated by W. Hailmann). Dover: New York.

Geary, R, Wheeler, B, Lovell, R, Jepson, R, Hunter, R and Rodgers, S (2021) 'A call to action: Improving urban green spaces to reduce health inequalities exacerbated by COVID-19' *Preventive Medicine*, Volume 145, pp. 1-3.

Gidlow, C, van Kempen, E, Smith, G, Triguero-Masc, M, Kruizeb, H, Gražulevičienė, R, Ellis, N, Hurst, G, Masterson, D, Cirach, M, van den Berg, M, Smart, W, Dèdelè, A, Maas, J

and Nieuwenhuijsen, M J. (2018) ‘Development of the natural environment scoring tool (NEST)’, *Urban Forestry & Urban Greening*, 29, pp. 322–333.

Gilchrist, M., Passy, R., Waite, S. & Cook, R. (2016) ‘Exploring schools’ use of natural spaces’ in Freeman, C. & Tranter, P. (eds) *Risk, Protection, Provision and Policy*, Vol. 12 of Skelton, T. (ed) *Geographies of Children and Young People*. Singapore: Springer.

Gill, T (2021) ‘Building Child-Friendly Cities’, Available at: [Tim Gill on Building Child-Friendly Cities | reSITE](#). Accessed on: 30.9.21.

Harris, M (2016) ‘Ecowomanism’, *World Views Environment Culture Religion* 20 (1), pp 5-14.

Harte, H (2013) ‘Universal design and outdoor learning’, *Dimensions of Early Childhood*, 41: 3, pp 18 – 22.

Hartig, T, Mitchell, R, de Vries, S and Frumkin, H. (2014) ‘Nature and Health’, *Annual Review of Public Health*, 35 (1), pp. 207-228.

House of Commons (2021) Autumn Budget And Spending Review 2021 Available at: [BUDGET 2021: Protecting the jobs and livelihoods of the British people \(publishing.service.gov.uk\)](#) Accessed on: 25.11.21.

Howe, N, Perlman, M, Bergeron, C and Burns, S (2021) ‘Scotland Embarks on a National Outdoor Play Initiative: Educator Perspectives’, *Early Education and Development*, 32:7, pp. 1067-1081.

Jeanes, R & Magee, J (2012) “‘Can we play on the swings and roundabouts?’: creating inclusive play spaces for disabled young people and their families’, *Leisure Studies*, 31:2, pp. 193-210.

Josephidou, J, Kemp, N and Durrant, I (2021) ‘Outdoor provision for babies and toddlers: exploring the practice/policy/research nexus in English ECEC settings’, *European Early Childhood Education Research Journal*, Ahead-Of-Print, pp. 1-17. Available at: <https://doi.org/10.1080/1350293X.2021.1985555> Accessed on: 20.12.21.

Kemp, N & Pagden, A (2019) ‘The place of forest school within English primary schools: senior leader perspectives’, *Education 3-13*, 47:4, pp. 490- 502.

Khan, S (2021) ‘Sulaiman Khan: Daringly integrating disability for business growth’, Available at: <https://sulaimankhan.co/> Accessed on: 30.9.21.

Kahn, P and Kellert, S. (2002) *Children and Nature: Psychological, Sociocultural, and Evolutionary Investigations*. Massachusetts: MIT Press.

Lee, E, Y, Bains A, Hunter S, Ament A, Brazo-Sayavera J, Carson V, Hakimi S, Huang, W, Y, Janssen, I, Lee, M, Lim H, Silva, DAS, Tremblay, MS (2021) ‘Systematic review of the correlates of outdoor play and time among children aged 3-12 years’, *International Journal of Behavioral Nutrition and Physical Activity*, 18:41, pp. 1 – 46.

Lewis, S. & Lingard, B (2015) ‘The multiple effects of international large-scale assessment on education policy and research’, *Discourse: Studies in the Cultural Politics of Education*, 36(5), pp. 621-637.

Macintyre S, Macdonald L, Ellaway A (2008) ‘Do poorer people have poorer access to local resources and facilities? The distribution of local resources by area deprivation in Glasgow, Scotland’, *Social Science & Medicine*, 67(6), pp. 900 - 914.

MacQuarrie, S, Nugent, C, & Warden, C. (2015) ‘Learning with nature and learning from others: nature as setting and resource for early childhood education’, *Journal of Adventure Education & Outdoor Learning*, 15(1), pp. 1-23.

Mahmoudi, S, Jafari, E and Liaghatdar, M. (2012) ‘Holistic Education: An Approach for 21 Century’, *International Education Studies, Vol 5 (2), pp. 178 – 186*.

Mart, M (2021) Parental Perceptions to Outdoor Activities, *International Journal of Progressive Education*, Vol. 17(4) pp 358-372.  
DOI: <https://doi.org/10.29329/ijpe.2021.366.22>

Mayer, F. S., & Frantz, C. M. (2004) ‘The connectedness to nature scale: A measure of individuals’ feeling in community with nature’, *Journal of environmental psychology*, 24(4), pp. 503 -515.

McMillen, J. D. *et al.* (2019) ‘Teachers’ perceptions of sustainable integration of garden education into Head Start classrooms: A grounded theory approach’, *Journal of Early Childhood Research, [s. l.]*, v. 17, n. 4, pp. 392–407.

Mears, M, Brindley, P, Barrows, P, Richardson, M and Maheswaran, R., (2021). 'Mapping urban greenspace use from mobile phone GPS data, *PLoS ONE*, 16 (7), pp. 1-30.

Miranda, N., Larrea, I., Muela, A., Barandiaran, A., (2017) ‘Preschool children’s social play and involvement in the outdoor environment’, *Early Education and Development*, 28(5), pp. 525-540.

Moore, Robin & Cosco, Nilda. (2014) ‘Growing Up Green: Naturalization as a Health Promotion Strategy in Early Childhood Outdoor Learning Environments’, *Children, Youth and Environments*, 24, pp. 168-191.

Moore, S.A., Faulkner, G., Rhodes, R.E (2020) ‘Impact of the COVID-19 virus outbreak on movement and play behaviours of Canadian children and youth: a national survey’, *International Journal of Behavioural Nutrition and Physical Activity*, 17, 85. Available at: <https://doi.org/10.1186/s12966-020-00987-8> Accessed on: 20.12.21.

NHS Health Scotland (2017) Evidence for environmental interventions to prevent childhood overweight and obesity within schools, Available at: <http://www.healthscotland.scot/media/1486/evidence-for-environmental-interventions-to-prevent-obesity-in-schools.pdf> Accessed on: 30.9.21.

NHS Health Scotland (2018) Children’s social circumstances and educational outcomes, Available at: <http://www.healthscotland.scot/media/2049/childrens-social-circumstances-and-educational-outcomes-briefing-paper.pdf> Accessed on: 30.9.21.

Natural England (2009) Monitor of Engagement with the Natural Environment: 2009 to 2010,

Available at: [Monitor of Engagement with the Natural Environment: 2009 to 2010 - GOV.UK \(www.gov.uk\)](http://www.gov.uk/government/uploads/system/uploads/attachment_data/file/144441/monitor-of-engagement-with-the-natural-environment-2009-to-2010.pdf) Accessed on: 30.9.21.

Natural England (2016) A review of nature-based interventions for mental health care, Available at: [A review of nature-based interventions for mental health care - NECR204 \(naturalengland.org.uk\)](http://www.naturalengland.org.uk/publications/2016/a-review-of-nature-based-interventions-for-mental-health-care) Accessed on: 30.9.21.

Natural England (2018) Monitor of Engagement with the Natural Environment Children’s Report (MENE) 2017-2018. <https://www.gov.uk/government/statistics/monitor-of-engagement-with-the-natural-environment-childrens-report-mene-2017-2018> Accessed on: 30.9.21.

Natural England (2019) MENE Children and Young People Report, Available at: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data)

[/file/828838/Monitor\\_of\\_Engagement\\_with\\_the\\_Natural\\_Environment\\_MENE\\_Childrens\\_Report\\_2018-2019\\_rev.pdf](#) Accessed on: 30.9.21.

Natural England (2020) Nature connectedness among adults and children in England (JP032), Available at: [Nature connectedness among adults and children in England - JP032 \(naturalengland.org.uk\)](#) Accessed on: 30.9.21.

Natural England (2020) The People and Nature Survey for England: Children's survey (Experimental Statistics) (2020), Available at: <https://www.gov.uk/government/statistics/the-people-and-nature-survey-for-england-child-data-wave-1-experimental-statistics/the-people-and-nature-survey-for-england-childrens-survey-experimental-statistics> Accessed on: 30.9.21.

Natural History Museum (2017) 'Disconnect from nature and its effect on health and well-being: A public engagement literature review (UK)', Available at: <https://www.nhm.ac.uk/content/dam/nhmwww/about-us/visitor-research/Disconnect%20with%20nature%20Lit%20review.pdf> Accessed on: 30.9.21.

Natural Resources (2020) Reconnecting people with nature, Available at: <https://naturalresourceswales.gov.uk/about-us/area-statements/north-west-wales-area-statement/reconnecting-people-with-nature/?lang=en> Accessed on: 30.9.21.

Natural Resources Wales (2021) Natural Resources Wales launches Children's Rights Charter on World Environment Day, Available at: <https://naturalresourceswales.gov.uk/about-us/news-and-events/news/nrw-launches-childrens-rights-charter-on-world-environment-day/?lang=en> Accessed on: 30.9.21.

Natural Resources Wales (2021) Reducing health inequalities, Available at: <https://naturalresourceswales.gov.uk/about-us/area-statements/south-west-wales-area-statement/reducing-health-inequalities/?lang=en> Accessed on: 30.9.21.

Natural England (2020) The People and Nature Survey for England: Children's survey (Experimental Statistics). Available at: [The People and Nature Survey for England: Children's survey \(Experimental Statistics\) - GOV.UK \(www.gov.uk\)](#) Accessed on: 20.12.21.

Office of National Statistics (2020) Children's views on well-being and what makes a happy life, UK:2020 A qualitative analysis of children's perspectives on their well-being and what

makes a happy life for a child using UK wide focus groups, Available at: <https://www.ons.gov.uk/peoplepopulationandcommunity/wellbeing/articles/childrensviewsonwellbeingandwhatmakesahappylifeuk2020/2020-10-02> Accessed on: 30.9.21.

Passmore, H, Martin, L., Richardson, M., White, M., Hunt, A., & Pahl, S. (2020). 'Parental/Guardians' Connection to Nature Better Predicts Children's Nature Connectedness than Visits or Area-Level Characteristics', *Ecopsychology*, 13:2, pp. 103 – 113. Available at: <https://findingnature.org.uk/2020/11/01/what-best-explains-childrens-connection-with-nature/> Accessed on: 30.9.21.

Passy, R., Bentsen, P., Gray, T., & Ho, S. (2019) 'Integrating outdoor learning into the curriculum: an exploration in four nations', *Curriculum Perspectives*, 39 (1), pp. 73-78. <https://doi.org/10.1007/s41297-019-00070-8>

Perlman, M, Bergeron, C and Howe, N (2021) Scotland's outdoor play initiative has some lessons for the rest of the world, Available at <https://theconversation.com/scotlands-outdoor-play-initiative-has-some-lessons-for-the-rest-of-the-world-132429> Accessed on: 30.9.21.

Perlman, M., Howe, N., Bergeron, C., (2020) 'How and why did outdoor play become a central focus of Scottish early learning and care policy', *Canadian Journal of Environmental Education*, 23(2), 46-66.

Public Health Scotland (2021) Children's social circumstances and educational outcomes, Available at: <http://www.healthscotland.scot/media/2049/childrens-social-circumstances-and-educational-outcomes-briefing-paper.pdf> Accessed on: 30.9.21.

Pyer, M, Horton, J, Tucker, F, Ryan, S & Kraftl, P (2010) 'Children, young people and 'disability': challenging children's geographies?', *Children's Geographies*, 8:1, pp. 1-8.

Rajabi, M (2020) 'Mental Health Problems Amongst School-age Children and Adolescents during the COVID-19 Pandemic in the UK, Ireland and Iran: A Call to Action and Research', *Health Promotion Perspectives* 10(4), pp. 293-294.

Razani, N, Radhakrishna, R and Chan, C (2020) 'Public Lands Are Essential to Public Health During a Pandemic', *Pediatrics*, 146 (2) p. 1546.

Reilly, J and Tremblay, M (2021) 'Rewild your kids: why playing outside should be a post-pandemic priority', Available at: <https://theconversation.com/rewild-your-kids-why-playing-outside-should-be-a-post-pandemic-priority-156077> Accessed on: 30.9.21.

Rice, C. S. and J. Torquati (2013) ‘Assessing Connections between Young Children’s Affinity for Nature and Their Experiences in Natural Outdoor Settings in Preschools’, *Children, Youth and Environments*, Faculty Publications, Department of Child, Youth, and Family Studies. 175. <http://digitalcommons.unl.edu/famconfacpub/175>

Richardson, E, Pearce, J, Shortt, N and Mitchell, R (2017) ‘The role of public and private natural space in children's social, emotional and behavioural development in Scotland: A longitudinal study’, *Environmental Research*, Volume 158, pp. 729-736.

Rouse, E. (2016) ‘Making learning visible – parents’ perceptions of children’s learning outdoors’, *Early Child Development & Care*, [s. l.], v. 186, n. 4, pp. 612–623.

RSPB (2021) ‘Disability Rights and the Fight for Nature’, Available at <https://www.youtube.com/c/RSPBVideo> Accessed on: 30.9.21.

RSPB (2021) Racial Justice and the Fight for Nature, Available at: <https://www.youtube.com/c/RSPBVideo> Accessed on: 30.9.21.

RSPB Wales (2012) ‘Every Child Outdoors Wales’, Available at: [Every child outdoors Wales \(rspb.org.uk\)](http://Every child outdoors Wales (rspb.org.uk)) Accessed on: 30.9.21.

S. Schneider, A. Bolbos, J. Fessler, C. Buck, (2019) ‘Deprivation amplification due to structural disadvantage? Playgrounds as important physical activity resources for children and adolescents’, *Public Health*, Volume 168, pp. 117-127.

Schlosberg, D (2007) *Defining Environmental Justice: Theories, Movements, and Nature*. Oxford: Oxford University Press.

Scott, K (2017) ‘For Children Of Color, Playing Outside Is Both Dangerous And Necessary’ Available at: [For Children Of Color, Playing Outside Is Both Dangerous And Necessary | HuffPost Communities](http://For Children Of Color, Playing Outside Is Both Dangerous And Necessary | HuffPost Communities). Accessed on: 20.12.21.

Scottish Government (2013) ‘Play strategy for Scotland: our vision’, Available at: <https://www.gov.scot/publications/play-strategy-scotland-vision/pages/5/> Accessed on: 30.9.21.

Scottish Government (2017) ‘Early learning, childcare and out of school care services: design guidance’, Available at: <https://www.gov.scot/publications/space-grow-design-guidance-early-learning-childcare-out-school-care/> Accessed on: 30.9.21.

Scottish Government (2017) ‘A blueprint for 2020: the expansion of early learning and childcare in Scotland’, Available at: <https://www.gov.scot/binaries/content/documents/govscot/publications/strategy-plan/2017/10/blueprint-2020-expansion-early-learning-childcare-scotland-quality-action-plan/documents/00526782-pdf/00526782-pdf/govscot%3Adocument/00526782.pdf> Accessed on: 30.9.21.

Scottish government (2021) ‘Effective environments to promote learning for children aged zero to five’, Available at: <https://education.gov.scot/improvement/learning-resources/effective-environments-to-promote-learning-for-children-aged-zero-to-five> Accessed on: 30.9.21.

Shoari N, Ezzati M, Baumgartner J, Malacarne D, Fecht D (2020) ‘Accessibility and allocation of public parks and gardens in England and Wales: A COVID-19 social distancing perspective’, *PLOS ONE*, 15(10): e0241102. <https://doi.org/10.1371/journal.pone.0241102>

Strife, S and Downey, L (2009) ‘Childhood Development and Access to Nature: A New Direction for Environmental Inequality Research’, *Organ Environ.*, 22(1), pp. 99–122.

Talaei, E and Noroozi, O (2019) ‘Re-Conceptualization of “Digital Divide” among Primary School Children in an Era of Saturated Access to Technology;’, *International Electronic Journal of Elementary Education*, [s. l.], v. 12, n. 1, pp. 27–35.

The Childhood Trust (2020) ‘The Consequences of the Coronavirus Crisis for Children Living in Poverty.’ Available at: <https://view.publitas.com/the-childhood-trust/children-in-lockdown-the-childhood-trust-report-june-2020/page/1> Accessed on: 30.9.21.

The Northern Ireland Executive, UK Government (2018) ‘Curricular Guidance in Preschool Education’, Available at: [https://www.education-ni.gov.uk/sites/default/files/publications/education/PreSchool\\_Guidance\\_30May18\\_Web.pdf](https://www.education-ni.gov.uk/sites/default/files/publications/education/PreSchool_Guidance_30May18_Web.pdf) Accessed on: 25.11.21.

The Northern Ireland Executive, UK Government (2018) ‘Early Years (0-6) Strategy (2010)’, Available at: <https://www.education-ni.gov.uk/sites/default/files/publications/de/early-years-strategy.pdf> Accessed on: 25.11.21.

United Nations (2021) ‘Revision of World Urbanization Prospects’ Available at: [2018 Revision of World Urbanization Prospects | Multimedia Library - United Nations Department of Economic and Social Affairs](#) Accessed on: 22.12.21.

United Nations (2021) ‘Sustainable Development Goals: 17 Goals to Transform our World’, Available at: [Sustainable Development Goals: 17 Goals to Transform our World | United Nations](#) Accessed on: 30.9.21.

United Nations (2021) ‘Recognizing ‘historic tipping point’, UN begins push towards more sustainable energy future’ Available at: <https://news.un.org/en/story/2021/03/1086882>. Accessed on: 20.12.21.

University of Strathclyde (2014) [https://medicalxpress.com/news/2014-05-scots-kids-world-global-health.html?utm\\_source=TrendMD&utm\\_medium=cpc&utm\\_campaign=MedicalXpress\\_TrendMD\\_1](https://medicalxpress.com/news/2014-05-scots-kids-world-global-health.html?utm_source=TrendMD&utm_medium=cpc&utm_campaign=MedicalXpress_TrendMD_1) Accessed on: 30.9.21.

Von Benzon, N, Karen E. and Makuch, Z (2008) ‘The Right for Disabled Children to Access the Natural Environment: A Law and Policy Critique’, *Willamette Journal of International Law and Dispute Resolution*, Vol. 16, pp. 76-105.

Von Benzon, N (2010) ‘Moving on from Ramps? The Utility of the Social Model of Disability for Facilitating Experiences of Nature for Disabled Children’, *Disability & Society*, v25 n5, pp. 617-626.

Von Benzon, N (2011) ‘Who’s afraid of the big bad woods? Fear and learning-disabled children’s access to local nature’, *Local Environment: The International Journal of Justice and Sustainability*, 16 (10). pp. 1021-1040.

Wainwright, N (2021) ‘The foundation phase in Wales, outdoor learning and motor development’, *Journal of Physical Education and Sport*, Vol. 21 (Supplement issue 1), Art 64, pp. 567 – 573.

Wainwright, N, Goodway, J, Whitehead, M, Williams, A & Kirk, D (2020) ‘Playful pedagogy for deeper learning: exploring the implementation of the play-based foundation phase in Wales’, *Early Child Development and Care*, 190:1, pp. 43-53.

Waite, S., Goodenough, A., (2018) ‘What is different about Forest School? Creating a space for an alternative pedagogy’, *Journal of Outdoor and Environmental Education*, 21(1), pp. 25-44.

Waite, S., Passy, R., Gilchrist, M., Hunt, A. & Blackwell, I (2016) ‘Natural Connections Demonstration Project, 2012-2016: Final Report. Natural England Commissioned Reports, Number 215’, Available at: <http://publications.naturalengland.org.uk/publication/6636651036540928> Accessed on: 20.12.21.

Waite, S (2020) ‘Where Are We Going? International Views on Purposes, Practices and Barriers in School-Based Outdoor Learning’, *Educ. Sci.*, 10, 311. Available at: <https://doi.org/10.3390/educsci10110311> Accessed on: 20.12.21.

Walker, E, Bormpoudakis, D and Tzanopoulos, J (2021) ‘Assessing challenges and opportunities for schools’ access to nature in England’, *Urban Forestry & Urban Greening*, Volume 61. 127097, ISSN 1618-8667. Available at: <https://doi.org/10.1016/j.ufug.2021.127097>. Accessed on: 20.12.21.

Waters, J & Maynard, T (2010) ‘What's so interesting outside? A study of child- initiated interaction with teachers in the natural outdoor environment’, *European Early Childhood Education Research Journal*, 18:4, pp. 473-483.

Weinstein, N, Balmford, A, DeHaan, C, Gladwell, V, Bradbury, R and Amano, T (2015) ‘Seeing Community for the Trees: The Links among Contact with Natural Environments, Community Cohesion, and Crime’, *BioScience*, Volume 65, Issue 12, pp. 1141–1153.

Welsh Government (2011) ‘Welsh Index of Multiple Deprivation Child Index 2011, Summary Report’, Available at: [https://gov.wales/sites/default/files/statistics-and-research/2019-04/welsh-index-of-multiple-deprivation-child-index-2011-summary-report\\_0.pdf](https://gov.wales/sites/default/files/statistics-and-research/2019-04/welsh-index-of-multiple-deprivation-child-index-2011-summary-report_0.pdf) Accessed on: 30.9.21.

Welsh Government (2015) ‘Curriculum for Wales: Foundation Phase Framework’. Available at: <https://gov.wales/sites/default/files/publications/2018-02/foundation-phase-framework-revised-2015.pdf> Accessed on: 30.9.21.

Welsh Government (2019) ‘Child Poverty Progress Report’, Available at: <https://gov.wales/sites/default/files/publications/2020-01/child-poverty-strategy-2019-progress-report.pdf> Accessed on: 30.9.21.

Welsh Government (2019) ‘Welsh Index of Multiple Deprivation (WIMD) 2019’ Available at: [Welsh Index of Multiple Deprivation \(WIMD\) 2019 | Data Map Wales \(gov.wales\)](#) Accessed on: 30.9.21.

Welsh Government (2019) ‘Written Statement: Government Response: Taking Forward Wales’ Sustainable Management of Natural Resources Consultation – Access Proposals’, Available at: <https://gov.wales/written-statement-government-response-taking-forward-wales-sustainable-management-natural-resources> Accessed on: 30.9.21.

Welsh Government (2020) ‘World Environment Day - New funds for nature will help communities plant the seeds for the Wales we want to see post Covid-19’, Available at: <https://gov.wales/world-environment-day-new-funds-nature-will-help-communities-plant-seeds-wales-we-want-see-post> Accessed on: 30.9.21.

Wilkinson, R (2005) *The Impact of Inequality: How to make sick societies healthier*. London: Routledge Press.

Wishart, L & Rouse, E (2019) ‘Pedagogies of outdoor spaces: an early childhood educator professional learning journey’, *Early Child Development and Care*, 189:14, pp. 2284-2298.

World Health Organisation (2021) ‘Urbanisation and Health’, Available at: <https://www.who.int/globalchange/ecosystems/urbanization/en/> Accessed on: 22.12.21.

Witherick, M and Small, J. (2001) *A Modern Dictionary of Geography*, London: John Wiley & Sons.

Yıldırım, G and Özyılmaz Akamca, G (2017) ‘The effect of outdoor learning activities on the development of preschool children’, *South African Journal of Education*, Volume 37, Number 2, pp. 1 – 10.

Youth Sports Trust (2021) 'Sport and activity sector responds to the Autumn Budget and 2021 Spending Review'. Available at: [Sport and activity sector responds to the Autumn Budget and 2021 Spending Review - Youth Sport Trust](#). Accessed on: 25.11.21.