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Education for Sustainable Development in Early Childhood

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Aistear
Creatchuraciam na Luath-Oige
The Early Childhood Curriculum Framework

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We have to walk in a way that we only print peace and serenity on the Earth. Walk as if you are kissing the Earth with your feet. (Hanh 1991, p.28)

Introduction

People are often intrigued as to what sustainability has got to do with Early Childhood Education and Care (ECEC) but actually, working with babies, toddlers and small children requires us to be very alert to what's happening all around us so we can support them for the present as well as empowering them to be ready for the future. Starting in the early years is critical because our way of looking at the world is culturally transmitted and tends to develop early (Nielsen et al., 2012; UNESCO and UN, 2024). The advantage of early years is that we can start the introduction to sustainability in small steps, developing an emergent inquiry-based approach which fosters babies, toddlers and young children's sense of agency (Daly and Maloney, 2023; Skehill and Daly, 2023).

The steps into sustainability are often delivered in what is described as Education for Sustainable Development (ESD) which is an educational approach that aims to equip individuals with the knowledge, skills, values, and attitudes necessary to contribute to a more sustainable and equitable world. To understand ESD it is useful to begin by grasping the broad concept of sustainability, drawn from the Brundtland Commission (1987) which suggests we need to meet the needs of the present without compromising the future. This was translated into three pillars of sustainability: economic, social equity and environmental, through which the 17 Sustainable Development Goals (SDGs) (UNESCO, 2012) are interwoven. However, Sen (2013) challenged the Brundtland (1987) definition because of the heavy focus on preserving things for the long term. Instead, he called for a new vision of human beings as agents of change who can reshape the world when given opportunities to think, assess, evaluate, inspire, agitate on issues at appropriate times. This definition also appears to align better with *Aistear: the Early Childhood Curriculum Framework's* (Government of Ireland [GoI], 2024a) notion of agentic early years educators. As a consequence of his new focus, Sen (2013, p.11) redefined sustainable development as: 'development that prompts the capabilities of present people without compromising capabilities of future generations'.

This paper will discuss ESD as it relates to ECEC and draws on *Aistear* (GoI, 2024a) which weaves ESD through its 9 Principles and 4 Themes, and describes ESD as supporting babies, toddlers and young children to care for themselves, others and the environment. *Aistear* (GoI, 2024a) is supported by the *Guidance for Good Practice* (GoI, 2024b) which provides a scaffold to help educators plan and develop a curriculum to support the learning and development of babies, toddlers and young children from birth to six years to develop the dispositions, attitudes and values along with skills, knowledge and understanding to become sustainability informed. *Aistear* (2024)

argues for a rights-based approach which operates through relationships and interactions, partnerships and connections, play, and through a reflective cycle of planning and assessing (NCCA, 2025). The Framework can be used to support and extend early learning through providing challenging and enjoyable learning experiences so that all babies, toddlers and young children thrive and flourish.

Sustainability is a concept that highlights that learning from the past informs the learning of the present and the future. Sustainability in the context of ECEC pedagogies is about what we learn about economic, social and environmental challenges, how we learn through collective problem-solving and collaborative innovation and why we need to share that learning to drive change in practice. It supports Sen's (2013) call for a new vision of human beings as agents of change.

Aistear (2024) echoes the legacies of educational pioneers such as Froebel and Montessori and more recent approaches such as Reggio Emilia (Malaguzzi, 1998). For example, the Reggio Emilia approach and *Aistear* (2024) share values such as child-centred education, observation and documentation, project-based learning, and the importance of relationships and environment. Both the New Zealand, Te Whariki curriculum framework (Ministry of Education, 1996) and *Aistear* (2024) emphasis on holistic development, cultural responsiveness, and the significance of family and community in children's learning. Like the pioneers of ECEC such as Froebel and Montessori, *Aistear* (2024) recognises that babies, toddlers and young children need to be connected to their world and that nature and the garden was central to their pedagogy, with the staff as careful gardeners nurturing the children's learning (Ranta, 2023).

Sustainability is also about balancing societal growth with economic viability without harming or destroying our environment and eco systems in which those societies exist. As guardians of our children's future, we must interweave the economy with nature, underpinned by fairness and consider it in relation to children's everyday lives for example where they live, what they eat, their families' income, peace and security, access to education, and how we interact with the environment, so ultimately, we tread lightly on the planet.

Every year the UN Committee on the Rights of the Child (1989) highlights the negative impact environmental changes are having on the life trajectory of babies, toddlers and young children (UNICEF, 2023). Air pollution, water pollution and exposure to toxic substances, together with other types of environmental harm, cause 1.5 million deaths of children under the age of 5 every year, and contribute to disease, disability and early mortality throughout their life. In addition, climate change and the loss of biodiversity threaten to cause long-term effects that will disrupt

children's lives for years to come. This is within a context of children unable to exercise their rights to information, participation and access to effective remedies (Knox,2018).

To address this, many governments across the world including the Irish Government developed *National Strategies on Education for Sustainable Development* (Government of Ireland, 2022) but how these strategies were translated into action is different. Countries such as Finland, Wales, Norway, Sweden and Scotland embedded sustainability into their national pedagogical frameworks, and education policies outlining how children should learn and how it should be taught (Furu and Valkonen, 2021; Nordic Council of Ministers, 2021;2024). The Education for Sustainability in the Australian Curriculum (2015) embedded cross-disciplinary links to socio-political themes, ensuring a deeper understanding of sustainability beyond environmental stewardship.

Scotland and Wales underpinned their curriculum frameworks with the Climate Change (Emissions Reduction Targets) (Scotland) Act, 2019 which outlined how climate change is addressed in national education policy, curriculum provision, and the management of school buildings and grounds. Wales did something similar with the Wellbeing of Future Generations (Wales) Act 2015. The UK's Sustainable Development Strategy for Education (2023) evolved to include programmes that support community action, such as school projects addressing local poverty and social justice. Ireland published its second strategy (2021-2030) recognising that sustainability, connections with nature and place and inclusion needs to be at the heart of education and embedded in teaching, learning and research, and woven into how we govern, lead and manage our educational environments (O'Donnell and Higginson, 2022).

However, not every attempt to introduce sustainability as part of the pedagogy was welcomed (Caiman et al., 2022). In Kenya for example, there were mixed reactions towards the sustainability influenced curriculum of 2019, designed to provide an opportunity to nurture every learner's potential through quality education so they could contribute more meaningfully to the world around them, economically, culturally, socially and politically. However, the Kenyan National Union of Teachers encouraged its members to shun the new curriculum particularly because of inadequate teacher training and poor infrastructure (Wandabi, 2019).

This highlighted that despite the efforts of 191 member states which signed up to achieve the SDGs by 2030, the world is still not on track to achieve Sustainable Development Goal (SDG) 4 which requires the provision of inclusive and quality education and lifelong learning opportunities for all (UNICEF, 2023). Nor is it likely to meet SDG 4.7 the target that states that by 2030 all learners should have acquired the knowledge and skills needed to promote sustainable development,

including learning about social justice issues such as human rights, promotion of a culture of peace and nonviolence and gender equality within the concept of sustainability.

What is Education for Sustainable Development (ESD) and its relationship to ECEC?

Education for Sustainability (ESD) was considered a powerful enabler of mindset change to support the integration of all three pillars of sustainability to support the well-being of all within planetary boundaries (Tilbury, 2011; UNESCO, 2021). ESD was considered to be a goal for education rather than a prescribed body of information and knowledge. It is holistic and transformational, encompassing pedagogy, learning content, environment and outcomes to address global challenges such as climate change, inequality, biodiversity and environmental degradation and sustainable consumption. It would help foster the right type of skills, attitudes and behaviour to ensure sustainable and inclusive practice and drive quality particularly when integrated into the everyday practice in ECEC settings (Engdahl, 2015; Borg and Samuelsson, 2022). It involves the 'head, hand and heart' and supports children with ways of being, relating, behaving, believing, and acting differently (Scoffham, 2023).

There were calls to place a greater emphasis on fostering competencies such as empathy, critical thinking, intercultural understanding, imagining future scenarios, community-based initiatives and collaborative decision-making to support sustainability in practice (Davis, 2015). The UNESCO (2021) report proposed a new social contract for ESD, emphasizing pedagogies of cooperation, inclusive curricula, inclusive and sustainable learning environments and a collaborative teaching profession. Educators would need to learn to embed sustainability topics such as climate change, biodiversity, and sustainable lifestyles into educational content and highlight their interconnectedness while encouraging a hands-on approach to learning about sustainability (UNESCO, 2024).

Unsurprisingly, some voices were anxious that education was expected to be the answer to every question, but there was an agreement that it could play a vital part in our efforts to imagine and harmonise relationships with each other and foster greater respect for the environment (Rogers, 2005). Other concerns were that ESD risked being considered too fluid a concept and therefore open to multiple interpretations (Evans et al., 2016) although Stevenson, (2006) countered that this could also allow for broader and provide more relevant options for each particular context. More recently, the term ESD has been criticized for its links to a neo liberal paradigm based on economic growth (Wolff et al., 2017). According to Santone (2019) while many commercial businesses wrap themselves in sustainability, their growth pathway and profits required increased use of energy and

natural resources creating a cycle of misuse. The development is being gradually dropped from the term and ESD has started to become Education for Sustainability because it is not linked to economic growth and focuses more on conditions where human life does not hurt any life (human or non-human) on earth today or in the future. Unsurprisingly, this direction has increased post-humanist and post-colonial research. According to Wolff's et al.,(2020) four ideas seem to be driving sustainability education in ECEC: outdoor play and learning, competent child and agency, practice architecture, and post humanistic approaches (Wals,2017; Ärlemalm-Hagsér and Elliott, 2020; Somerville, 2020; Kemmis, 2022).

This context also set the scene for how ESD would shape Early Childhood Education and Care (ECEC) and its place in the sustainability jigsaw. There did not appear to be a great disconnect between ESD and ECEC as they both advocate for a holistic and transformational framing within which learning is play-based, inquiry-driven, and participatory while also enhancing children's cognitive, social and emotional and behavioural learning and development (Mochizuki and Bryan, 2015 and Reid, 2019).

ECEC in ESD integrates environmental, social, and economic dimensions of sustainability into early learning experiences. It encourages children to develop ecological literacy, critical thinking, and agency in relation to sustainability issues as young children are highly receptive to learning about their interconnectedness with nature and society (Davis, 2015; Elliott et al., 2020). Sustainability is not a subject or part of an environmental programme. Teachers who understood sustainability as a separate ESD subject were quick to object to yet something else being squeezed into an already overcrowded curriculum (Enser, 2019). Therefore, in ECEC, sustainability is central to children's whole experience and part of a broad and inclusive quality education where children are helped to understand their role in creating a sustainable future (O'Sullivan and Corlett, 2021). It knits into *Aistear's* (2024) view of children as global citizens and early years educators' ability to nurture holistic learning and build children's knowledge and wisdom about the world and the people who live here.

What is the role of the early years educator in supporting ESD in ECEC?

Sustainability education in ECEC is emerging as a highly value related issue. Sustainability tends to leak into personal values with the potential for conflict and challenge, not least because people's personal values significantly influence their attitudes toward sustainable development and its underlying aspects, including how they view children. Consequently, their values are an important influence on their ethical, environmental behaviour as well as their interpersonal performance and decision-making (Hemingway, 2005; Tuziak, 2010). Where adults have more entrenched views, the

education for sustainability is restricted (Ärlemalm-Hagsér, 2014; Engdahl, 2015). *Aistear's Guidance for Good Practice* (Gol, 2024b) is designed to help early years educators design new ways of working and when staff are well-supported, they are more likely to model healthy, sustainable behaviours for babies, toddlers and young children.

How early years educators perceive children is also important. Some consider children to be citizens with the right to be engaged in social and environmental issues from an early stage (Hagglund and Johansson, 2014; Skehill and Flaherty, 2023). For them citizenship is not something that should suddenly be expected when they enter adulthood. It supports the more contemporary view of children as beings not becomings, capable of active participation in matters of sustainability (James and Prout, 2015).

This approach also aligns with the Convention of the Rights of the Child (1998) which recognised children as a citizen group, capable of sophisticated thinking in relation to socio economic issues and with a part to play in public awareness of sustainability. *Aistear* (2024) recognises babies, toddlers and young children as agentic which means they have voice and influence over their own learning which is enabled when early years educators consider them to be competent, confident and curious, willing and able to engage, communicate, explore and think! Children, as well as educators and students, need opportunities to make meaning of their own experiences, summed up by *Aistear's* (2024) view of babies, toddlers and young children as active global citizens with transformative capabilities to be active agents of change supported by noticing, nurturing and attuned educators who can help the babies, toddlers and young children meet their needs and rights so they thrive and flourish (Furu et al. 2020, 2021). However, other adults question whether environmental problems should be addressed in the early year's context at all, viewing children as innocent and needing protection from the sustainability debate (Ginsburg and Audley, 2020).

According to Kemmis and Groves (2018), education for sustainability needs to be orientated towards the good of each person and of mankind by driving practice which is based on reason to ensure a productive and sustainable economy and environment which underpins a just and democratic society and provides the knowledge and ways of relating to others that equips them to live sustainably and pursue the good of humankind. This is done by introducing children of all ages to an educational approach that fosters their individual and collective self-expression, self-development, and self-determination that prepares them to address significant issues such as climate change.

Our understanding of our own values is therefore a key factor because the way children learn to become sustainable, impacts on whether and how they develop a sense of social justice and fairness

and become aware of and respect their own and others' needs, rights and feelings while also developing the skills of co-operation, responsibility, negotiation, problem-solving and conflict resolution (UNESCO,2017). *Aistear* (2024) reminds us that babies, toddlers and young children have the right to be heard and be given the chance to comment about where they live and not simply rely on adult interpretations of what adults think children understand about local issues. Consequently, the need for dialogic approaches where educators create opportunities for children to have voices heard on topics related to sustainability issues was advocated by Bautista et al. (2018).

Engaging young children in exploring their neighbourhoods can significantly enhance their environmental awareness and understanding fostering not just a connection with nature but also promote environmental stewardship from an early age (Washinawatok et al.,2017). For example, providing children with digital cameras to photograph what troubles them about the local area or what they notice about nature in their immediate environment (Einarsdottir, 2005; Brethnach et al., 2018). Such research drives environmental stewardship which includes encouraging sustainable habits and developing a sense of responsibility for the environment through hands-on activities, such as recycling, gardening, and conserving resources instilling lifelong values of respect, care, and responsibility towards the earth (Charles,2018). Children have the right to participate in their community and use their evolving capacity to build their knowledge and wisdom about the wider world, the people who live in it and their own place in it as they grow and mature, aligning with *Aistear's* concept of *ómós áite* (value of place). Nothing is more powerful than having a child remind you to stop dropping litter and wasting water by letting taps overflow while ensuring we offer food to food banks or look after a sick animal (Spiteri, 2020). Therefore, we ignore babies, toddlers and young children at our peril (Davis and Elliott, 2014; Santone, 2019; Skehill and Daly, 2023).

Early Years educators may have less intentionality in their teaching about the social strand of sustainability as evidenced in Skehill and Flaherty's (2023) action research study in practice with babies, toddlers and young children. Boldermo and Ødegaard (2019) identified how a lack of intentionality may limit the potential for developing a transformative pedagogy and curriculum, highlighting the need to engage in dialogues addressing oppressive social and economic factors that contribute to poverty or harm the planet. One study by Paujik et al.,(2021) highlighted that ECEC educators predominantly focus on environmental aspects of sustainability, often overlooking socio-political dimensions. Research in Greece found ECEC educators lacked understanding of the important interrelatedness of the sustainability pillars; economic, social and environmental (Maidou, Plakitsi, and Polatoglou (2019). Similarly, a study involving teachers from Bosnia and Herzegovina, Croatia, and Slovenia (Višnjić-Jevtić et al.,2022) found that while educators could provide practical examples of sustainable practices, their understanding of sustainability often differed from

educational policy definitions and needed clearer guidelines and training to integrate all dimensions of sustainability into their curricula more coherently. While it is important that sustainability permeates the curriculum, so children learn to become sustainable, it is also important that early year's educators understand how to draw out each pillar, so they don't become melded into one or where pedagogical interventions do not nurture environmental or challenge prejudicial attitudes at this young age, then they may never be positively developed (Derman-Sparks and Ramsey, 2005; Engdahl and Rabušicová, 2011; Purvis et al., (2019). Engaging children in socio-political dialogue supports them to challenge stereotypical assumptions about poverty and to develop awareness about socio-political inequalities in the local, national and global contexts (Siraj-Blatchford, 2009). When children's experiences of sustainability are limited to learning only about the environment, there are missed opportunities to be part of a community of learners who participate in critical dialogues that revolve around sustainability issues beyond environmental themes (Siraj-Blatchford, 2009).

The distinction between environmental education and education for sustainable development was made by Venkataraman,(2009) who explained that environmental education focuses on the human's relationship with the natural world and on ways to conserve, preserve it and properly steward its resources. When sustainability was limited to a green curriculum it risked becoming focused on hackneyed topics such as endangered species and the rainforest, doing very little to advance the critical thinking of the wider concept of sustainability. Reid (2019) makes a similar point suggesting that we need to choose lives that will foster rather than inhibit sustainability and equity interconnectedly for ourselves and our communities.

Aistear (2024) presents an understanding of sustainability as caring for oneself, caring for others and caring for the environment, providing an accessible and holistic interpretation of the pillars of sustainability. This definition goes some way to respond to educators concerns about how to teach all three pillars of sustainability which is why they rely on the green principles of reduce, recycle and reuse to cover everything. Reducing tended to focus on reducing water and electricity consumption while recycle and reuse fixed on addressing plastic and paper usage and increasing natural resources (Davis, 2008; Årlemalm-Hagsér, 2013; Pamuk et al., 2021; Borg et al., 2021; Sass et al., 2024).

Santone (2019) argued that what is needed is a reframing of the existing education towards more interconnected teaching about social justice through sustainability with the goal of social change becoming the intersection between democratic education and critical pedagogy focused on analysing, critiquing and ultimately changing oppressive structures to expand freedom, justice and happiness. ECEC, therefore, has a crucial role in enhancing values such as respect for life, human

rights, human dignity and therefore educators/teachers need to understand how to implement the values of compassion with children for the wellbeing of people and the planet and for a just and healthy world (Broadfoot and Pascal, 2021).

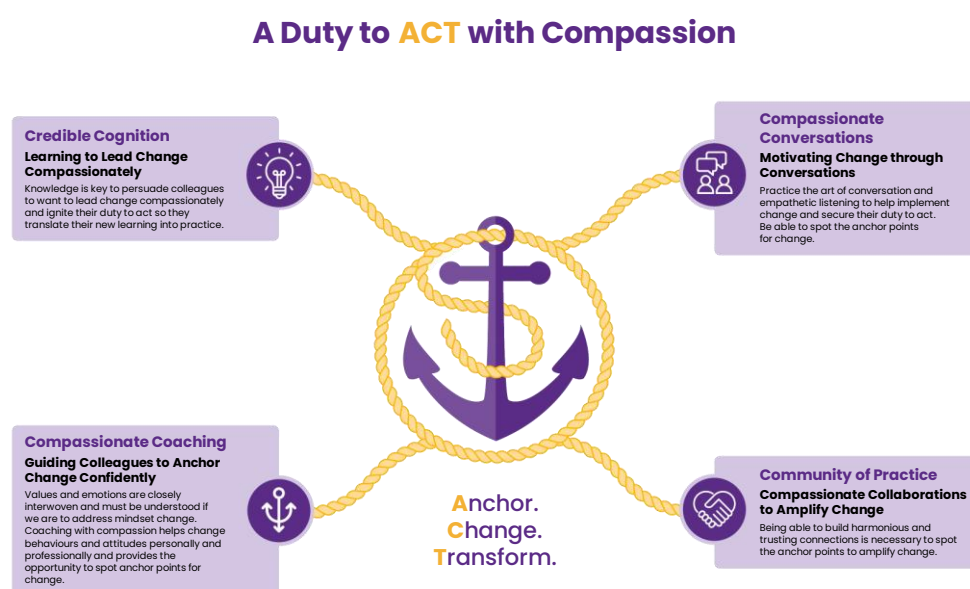
Much of the solution to supporting early years educators is locked onto professional training but this does not guarantee that by attending training early years educators will become sustainability informed. There is a need for a hearts and mind change and a willingness to address personal attitudes and commit to change (Ranta, 2023). Some early years educators are eager to make changes to their own practice and to the settings curriculum while others feel overwhelmed and become anxious about the prospect of change (Grigorov and Fleuri, 2012). According to Clark (2012), we need to transform from ego to eco otherwise we remain on a course of living which exploits, extracts and consumes with insufficient attention to the dependencies we have on the planet. This requires a more thoughtful approach to teaching early years educators about sustainability given the unique role they play in transforming education because their teaching can support their passion and belief and that their actions are worthwhile and anchored by a social justice axiology (Mochizuki and Bryan, 2015). These perspectives require professionalism and a willingness to embrace new pedagogical practices from staff. Corcoran, Weakland and Wals (2017) argued that to meet the challenges of our day, education in every phase of our life has to be truly transformative or even transgressive.

This view is the subject of many debates regarding the implementation and understanding of sustainability within ECEC and how to respond in a way that is effective and drives critical thinking, collaboration and innovation to support sustainability in practice (Davis, 2015; Santone, 2019; McBride, 2022; Taylor and Green, 2022). The need to build educator capacity to handle complex socio-cultural and political topics related to sustainability through professional development programmes is also increasingly recognised by governments as essential for fostering a generation of children who are informed and engaged in sustainable practices which is why having strategies provides a useful nudge but unlikely to transform the sector unless they come with professional development opportunities, sufficient resources, and support to weave sustainability into existing curricula (UNESCO, 2020).

However, Huggins and Evans (2018) pointed out that many educators are not yet engaging in transformation of their practice and there is a risk that sustainability work is not perceived as a common educational responsibility, but rather as the individual pursuit of an expert, enthusiast, or eco-warrior. Hence, in order to enhance sustainability work in the ECEC context, focus needs to be directed towards professional development at the team level.

This puts the onus on leadership to support colleagues to be willing to adapt so that change is embedded in practice. Collins and Garrity (2023) caution that the successful implementation of ESD in practice is dependent on the leadership and the culture of the setting with the risk that understanding and enactment will remain inconsistent without the proper supports in place. This resonates with ESD practice in other countries such as Greece, Turkey, Malta, Cyprus and Germany where practice is uneven, educators lack understanding of the important interrelatedness of the three sustainability pillars and change is reliant on those willing educators passionate about sustainability (Zimmermann and Müller, 2014; Demir and Karamustafaoglu, 2020; Tsaliki, Karavela and Papadopoulou, 2023).

In a recent research piece I conducted, I found that educators attending sustainability CPD programmes with the intention of successfully anchoring their new learning into their settings need to attend CPD programmes which teach them about the 4 Cs. These are credible cognition, conversations, coaching and a community of practice all driven by compassion that levers a duty to act. Learning how to use the 4Cs described in the diagram below highlights how educators who have learned about sustainability can influence their colleagues to develop an open mindset to become sustainability informed and willing to build a culture of sustainability. For example, they learn how to notice the points for change during their conversations and how they can secure the change through coaching, supported by a community of practice. The diagram summarises the process:



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Figure 1: A Duty to ACT with Compassion O'Sullivan, 2025

Weaving sustainability through pedagogy, curriculum and assessment

Leading pedagogy through a sustainability lens drives the need to create supportive and collaborative work environments where babies, toddlers and young children can learn about social and environmental responsibility, and where educators are empowered to lead and deepen the engagement with sustainability practices and adapt to changing educational landscapes (Aistear, 2024). Every day, early years educators endeavour to provide babies, toddlers and young children with a rich variety of relevant, inquiry-based, fun, sensory hands-on play-based learning experiences indoors and outside. They build and scaffold children's interests both in their settings and beyond and this should be no different when introducing sustainability. They pay attention to those babies, toddlers and young children who may need extra support or resources to ensure equality of opportunity and empower them to participate and be fully included. Equity in early childhood is about fairness in addressing any challenges that any child might face because of their background or ability and develop children's compassion for each other and the world around them. This is completely aligned with the ethos of sustainability and Aistear (2024). The connection with home and families is also a key element of ECEC and Aistear (2024) refers to funds of knowledge, the theory originally introduced by Moll et al., (1992) which recognised the rich cultural and cognitive resources that children bring from their homes and communities to learning, connecting curriculum to their lived experience, their identity and sense of belonging in the setting.

When children learn about sustainability, they soon learn to remind the adults to turn off the lights when we leave the room, stop taps running and save water from activities to water plants. Some of the activities are also good for their wellbeing and reflect the slow nurturing pedagogy espoused by Aistear (2024) wallowing in the slow pace of just being through the daily walk, babies napping outside or every child connecting with the grandeur of nature by lying in the grass listening to the birds and the rustle of the leaves, developing their sense of *ionadh* (wonder) and awareness of their *ómós áite* (sense of place).. Collado et al. (2013) found that the promotion of nature connectedness among children can effectively encourage pro-environmental actions among children. Sustainable art is a joyful approach for babies, toddlers and young children created by using natural resources such as sticks, leaves, shells, petals, stones and feathers, folklore and storytelling and this can be extended in so many ways by talented educators (Kallio-Tavin, et al., 2015; O'Sullivan and Khan, 2023).

Babies, toddlers and young children love to know where their food comes from and growing their own is the most effective way of bringing that to life which is then served as part of a meal or used as ingredients for a home learning cooking activity which combines learning and cooking into

a family meal (Froebel Trust, (n.d.). For early years educators this experience offers rippled learning so not only can they see social pillar of sustainability in action by helping families access food but they also begin to learn about how our food is produced including sustainability issues such as the unseen low-wage people who provide food and goods cheaply, becoming part of the zero-waste circular economy, working in harmony with the biosphere, creating energy, bringing consumption down and building collaborative partnerships and a community of practice locally and globally (O'Sullivan and Corlett, 2021; www.childrenandnature.org). The four Themes of Wellbeing, Identity and Belonging, Communicating and Exploring and Thinking which are core to *Aistear* (2024) are all linked to Learning Goals which can help shape plans for activities that support the principles of children and educators as agentic which is of major importance for education for sustainable development (Bascope et al., 2019).

As they learn about the impact of our actions on the planet, babies, toddlers and young children will want to help (Strife, 2012). They are instinctive gardeners and learn very quickly about compost heaps, wormeries and bug hotels to support local biodiversity. Babies, toddlers and young children can become guerrilla gardeners, making seed bombs to plant in little green corners or in unloved green spaces (Ranta, 2023). Children love tree counting walks and then connect with a local tree charity especially if living in an urban space. These activities are also good for the staff's health and wellbeing and provide opportunities to engage families and educators and spark conversations about sustainability to positive effect, a point highlighted in Louv's seminal work about nature deficit disorder, which is according to him on the increase (Louv, 2010; Chawla, 2015; O'Sullivan and Manners, 2022).

Babies, toddlers and young children need to find their place in their communities and ECEC settings reflect the local area. *Aistear* (2024) is very thoughtful about the importance of connections and relationships and weaves these concepts throughout all four Themes and the Learning Goals. These connections influence understandings of diversity of place, routines, family, culture(s) and language(s). This is translated by early years educators taking all the children out to visit shops, cafes or a local market. Getting to know the shopkeepers brings many delights. For example, florists will donate discarded flowers, which become petal showers, soap, perfume and central to many other sensory experiences especially for babies. Picture framers often have insets which provide children with a new way to display their paintings. Hardware shops are a source of resources for 'loose parts' play.

Connecting with the local garden centre often results in free plants, and local councils will donate bulbs that have not been used. The friendly neighbourhood charity shops will look out for books and resources that are sold at very low price and particularly great for the role play area and

dressing up all this instils an understanding of repurpose and reuse into children and is often an interesting learning point for families who see us using cardboard boxes and other recycled resources in the baby and toddler rooms which in turn inspires families and moves onto the home learning bridge.

Some settings are near elderly homes, and they befriend each other, building a programme of regular visits and doing activities together like making dolls clothes, storying telling and singing. Making friends with the local charity, helping to stock a food and clothes bank, meeting the Big Issue seller and getting involved in specific world day campaigns are all ways of introducing staff and children and families to the social equity pillar of sustainability. You just need to think differently and be prepared to build a social network locally. Children are the best community envoys and have a real sense of social justice.

Understanding how the babies, toddlers and young children are making progress can be a focus of assessment and a useful way of engaging not only the children but also their parents and extended family. Assessment refers to the process of gathering, interpreting, and using information about children's learning and development to inform educational decisions. It involves a variety of methods, such as observation, documentation, and interaction with children, to monitor their progress in areas such as cognitive development, emotional well-being, and social skills. Assessment can be a contested subject with concerns about the process becoming over-reliant on formalised, standardised assessments which are not grounded in the real-life contexts and may not adequately capture the diverse ways in which young children learn (Pound, 2011).

However, *Aistear* (2024) addresses this by describing assessment as on-going means of seeing what babies, toddlers and young children do, make and communicate. Assessment data helps early years educators plan for a rich variety of relevant, meaningful and hands-on learning experiences. It can promote planning for and developing the curriculum in practice through a continuous cycle of noticing, nurturing, responding and reflecting. Ongoing documentation show the importance of everyday experiences in supporting early learning and development including in the area of ESD. Having a sustainability board has been eye opening for many parents who have been stunned by children's willingness to lead actions such as creating their own recycling stations, building a bug hotel, making friends with the local community food bank organisations and enjoying making biscuits to provide for local shopkeepers (O'Sullivan and Corlett, 2024).

Conclusion

This paper focused on what ESD looks like in relation to pedagogy, curriculum and assessment of sustainability in line with *Aistear* (Gol, 2024a). It highlights the importance of early years educators' willingness to become sustainability informed so that sustainability does not become a buzzword and is embedded into practice (Apetrei et al., 2021).

Babies, toddlers and young children and educators all need to be educated about sustainable living and this can be best achieved if we start thinking differently to help create a world which maximises babies, toddlers and young children's life opportunities, recognises their capacities as active citizens, and nurtures hope, peace, equity and sustainability rather than just pass the problems of unsustainable living on to the next generation.

References

- Ärlemalm-Hagsér, Eva. (2013) A Prescription for Developing Environmental Awareness in Preschool. *Centre for Educational Policy Studies Journal*, 3 (1) pp. 25–44.
- Ärlemalm-Hagsér, E. and Davis, J. (2014) Examining the rhetoric: A comparison of how sustainability and young children's participation and agency are framed in Australian and Swedish early childhood education curricula. *Contemporary Issues in Early Childhood*, 15(3), pp.231-244.
- Ärlemalm-Hagsér, E. and Elliott, S.(2020) Analysis of historical and contemporary early childhood education theories in the Anthropocene. In *Researching early childhood education for sustainability* (pp. 3-12). Routledge.
- Apetrei, C.I., Caniglia, G., von Wehrden, H. and Lang, D.J. (2021) Just another buzzword? A systematic literature review of knowledge-related concepts in sustainability science. *Global Environmental Change*, 68, p.102222.
- Assembly, U.G., (1989) Convention on the Rights of the Child. *United nations, treaty series*, 1577(3), pp.1-23.
- Australian Association for Environmental Education. (2015). *Education for Sustainability and the Australian Curriculum Project: Final Report*.
- Bascope, M., Perasso, P. and Reiss, K., (2019) Systematic review of education for sustainable development at an early stage: Cornerstones and pedagogical approaches for teacher professional development. *Sustainability*, 11
- Bautista, A., Moreno-Núñez, A., Ng, S. C., and Bull, R. (2018) Preschool Educators' Interactions with Children About Sustainable Development: Planned and Incidental Conversations. *International Journal of Early Childhood*, 50(1), 15–32.
- Boldermo, S. and Ødegaard, E.E. (2019) What about the migrant children? The state-of-the-art in research claiming social sustainability. *Sustainability*, 11(2), p.459.
- Borg, F. (2017) Kids, Cash and Sustainability: Economic Knowledge and Behaviours among Preschool Children. *Cogent Education*, 4 (1) pp. 1–14.
- Borg, F. and Samuelsson, I.P.,(2022) Preschool children's agency in education for sustainability: The case of Sweden. *European Early Childhood Education Research Journal*, 30(1), pp.147-163.
- Breathnach, H., Danby, S. and O'Gorman, L. (2018) We're doing a wedding': producing peer cultures in pretend play. *International Journal of Play*, 7(3), pp.290-307.
- Broadfoot, H., Pascal, C. (2020) Exploring experiences of compassion in the daily rhythms of one early childhood community. *European Early Childhood Education Research Journal: Volume 28:4*
- Brundtland, G. H. (1987) Our common future: Report of the world commission on environment and development. New York: UN General Assembly.
- Caiman, C., Hedefalk, M. and Ottander, C. (2022) Pre-school teaching for creative processes in education for sustainable development–invisible animal traces, purple hands, and an elk container. *Environmental Education Research*, 28(3), pp.457-475.
- Charles, C., 2018. *Home to us all: how connecting with nature helps us care for ourselves and the earth*. Available at: www.childrenandnature.org

Chawla, L., (2015) Benefits of nature contact for children. *Journal of planning literature*, 30(4), pp.433-452.

Clarke, P. 2012 *Education for Sustainability: Becoming Naturally Smart*. London, Routledge.

Collado, S., Staats, H., and Corraliza, J.A. (2013) Experiencing nature in children's summer camps: Affective, cognitive and behavioural consequences, *Journal of Environmental Psychology*, 33, pp. 37–44.

Collins, S., and Garrity, S. (2023) Early childhood educators' understanding of education for sustainable development. *Irish Educational Studies*, pp. 1–19.

Corcoran, P.B., Weakland, J.P. and Wals, A.E. eds. (2017) *Envisioning futures for environmental and sustainability education*. Wageningen: Wageningen Academic Publishers.

Davis, J. M. (2008) What might education for sustainability look like in early childhood? A case for participatory, whole-of-settings approaches. The Contribution of Early Childhood Education to a Sustainable Society. pp.18-24. UNESCO Publications.

Davis, J. (Ed.) (2015). *Young Children and the Environment: Early Education for Sustainability* (2nd ed.). Cambridge University Press

Daly, M. and Moloney, M. (2023) 'Early childhood educators' understanding of education for sustainable development', *Irish Educational Studies*, 42(1), pp. 1-15.

Derman-Sparks, L. and Ramsey, P.G. (2005) What if all the children in my class are White? Anti-bias/multicultural education with White children. *YC Young Children*, 60(6), p.20.

Demir, A. and Karamustafaoglu, S. (2020) *Mapping the mainstreaming of Education for Sustainable Development across SDG 4.7: A Comparative Analysis of the Mainstreaming of ESD in Cyprus, Greece, Malta, and Turkey*. *Sustainable Education Journal*, 15(3), pp. 42-58.

Department for Education (2023) *Sustainability and climate change: a strategy for the education and children's services systems*. Available at:

<https://www.gov.uk/government/publications/sustainability-and-climate-change-strategy>

Education Scotland (2019) *Climate Change in Scottish Education*. Available at:

<https://education.gov.scot/resources/climate-change-in-scottish-education>

Einarsdottir, J., (2005) Playschool in pictures: Children's photographs as a research method. *Early child development and care*, 175(6), pp.523-541.

Elliott, S., Ärlemalm-Hagsér, E. and Davis, J. (2020) *Researching early childhood education for sustainability: Challenging assumptions and orthodoxies*. London: Routledge.

Engdahl, I. and Rabušicová, M. (2011) July. Education for sustainable Development in Practice. In *A Report for the OMEP World Assembly and Conference on the OMEP WORLD*.

Engdahl, Ingrid. (2015) Early Childhood Education for Sustainability: The OMEP World Project. *International Journal of Early Childhood*, 47,(3), pp.347–366.

Enser, M.(2019) "Stop Putting all Society's Problems on to Schools." *Time Educational Supplement*. Available at: <https://www.tes.com/news/stop-putting-all-societys-problems-schools>

Evans N (Snowy), Ferreira J-A, Davis J, Stevenson RB. (2016) Embedding EfS in Teacher Education Through a Multi-Level Systems Approach: Lessons From Queensland. *Australian Journal of Environmental Education*. 32(1), pp. 65-79.

Froebel Trust. (n.d.) *Growing, cooking and eating*. Available at: <https://froebel.org.uk/training-and-resources/froebels-occupations/cooking/growing-cooking-and-eating>

Furu, A-C. and Valkonen, S. (2020) Assessment Tool for Promoting Sustainability in Early Childhood Education and Care. Available at <https://blogs2.abo.fi/prosus-projektet/the-tool/>

Furu, A.C. and Valkonen, S. (2021) Gearing Up for Sustainability Education in Finnish Early Childhood Education and Care (ECEC): Exploring Practices and Pedagogies by Means of Collegial Reflection and Discussion. *International journal of early childhood environmental education*, 8(2), pp.30-42.

Ginsburg, J.L. and Audley, S. (2020) "You don't wanna teach little kids about climate change": Beliefs and Barriers to Sustainability Education in Early Childhood. *International Journal of Early Childhood Environmental Education*, 7(3), p.42.

Government of Ireland. (2022) *ESD to 2030: Second National Strategy on Education for Sustainable Development*. Dublin: The Stationery Office.

Government of Ireland (Gol). (2024a) *Aistear: the Early Childhood Curriculum Framework*. Dublin: Government Publications. curriculumonline.ie/getmedia/1e9e4eff-5d44-4950-bfa6-a28f43895d3f/Aistear-FW-ENG.pdf

Government of Ireland (Gol). (2024b) *Aistear: the Early Childhood Curriculum Framework: Guidance for Good Practice*. Dublin: Government Publications. curriculumonline.ie/getmedia/f2932ad8-326d-4cb7-9d6c-09bc138f9a8a/Aistear-G-ENG.pdf

Grigorov, S. and Fleuri, R. (2012) 'Education for Sustainable Development at the Early Childhood Education'. *Visão Global*, 1(1). Available at: https://www.academia.edu/4111655/Ecopedagogy_educating_for_a_new_eco_social_intercultural_perspective_Visao_Global_UNOESC_Florianopolis

Hagglund, S. and Johansson, E. M. (2014) 'Belonging, value conflicts and children's rights in learning for sustainability in early childhood' in J. Davis and S. Elliott (Eds.), *Research in early childhood education for sustainability: International perspectives and provocations* (pp. 38-48), London: Routledge

Hanh, T.N. (1991) *Peace Is Every Step: The Path of Mindfulness in Everyday Life*. New York: Bantam Books.

Hemingway, C.A., (2005) Personal values as a catalyst for corporate social entrepreneurship. *Journal of business ethics*, 60, pp.233-249.

Huggins, V. and Evans, D. (2018) Early childhood education and care for sustainability. *International perspectives*.

James, A. and Prout, A., 2015. Re-presenting childhood: Time and transition in the study of childhood. In *Constructing and reconstructing childhood* (pp. 202-219). Routledge.

Kallio-Tavin, M. and Haanpää, R. (2015) 'Arts-based environmental education'. *Environmental Education Research*, 21(5), pp. 846–857.

Kemmis, S., Edwards-Groves, C., Kemmis, S. and Edwards-Groves, C. (2018) Education, practice, and practice architectures. *Understanding Education: History, Politics and Practice*, pp.115-158.

Kemmis, S. (2022) *Transforming Practices*. Springer.

Knox, J.H. (2018) Report of the Special Rapporteur on the issue of human rights obligations relating to the enjoyment of a safe, clean, healthy and sustainable environment', United Nations Human Rights Council, A/HRC/37/58. Available at:

<https://www.ohchr.org/en/documents/thematic-reports/ahrc3758-report-special-rapporteur-issue-human-rights-obligations>

Louv, R. (2010) *Last Child in the Woods*. Atlantic Books.

Maidou, A., Plakitsi, K., and. Polatoglou, H.M. (2019) Knowledge, Perceptions and Attitudes on Education for Sustainable Development of Pre-Service Early Childhood Teachers in Greece. *World Journal of Education* 9 (5) pp.1–15.

Malaguzzi, L. (1996) *The Hundred Languages of Children: The Reggio Emilia Approach to Early Childhood Education*. New Jersey: Ablex Publishing Corporation

McBride, J (2022) A Research Review of Early Childhood Education for Sustainability: Illustrates Teachers' Challenges. *EE Pro Journal*, 18(3), pp. 123-135.

Mochizuki, Y. and Bryan, A. (2015) Climate change education in the context of education for sustainable development: Rationale and principles. *Journal of Education for Sustainable Development*. 9(1), pp.4-26.

Moll, L.C., Amanti, C., Neff, D. and Gonzalez, N. (1992) Funds of knowledge for teaching: Using a qualitative approach to connect homes and classrooms', *Theory into Practice*, 31(2), pp. 132-141.

National Council for Curriculum and Assessment (NCCA) (2025). Aistear as a rights-based curriculum Framework. Available at: <https://ncca.ie/en/resources/aistear-as-a-rights-based-early-childhood-curriculum-framework-ncca-2025/>

Nielsen M., Cucchiaro, J. and Mohamedally, J. (2012) When the transmission of culture is child's play. *PLoS ONE*, 7(3), e34066.

Nordic Council of Ministers (2024) *Status of sustainability education in the Nordic countries*. Available at: <https://pub.norden.org>

Nordic Council of Ministers (2021) *Mapping Education for Sustainability in the Nordic Countries*. Copenhagen: Nordic Council of Ministers. Available at: <https://www.norden.org/en/publication/mapping-education-sustainability-nordic-countries>

O'Sullivan, J. and Corlett, N. (2021) *50 Fantastic Ideas for Sustainability*. London: Bloomsbury.

O'Sullivan, J. and Khan, N. (2023) *50 to Encourage Diversity and Inclusion*. London: Bloomsbury.

O'Sullivan, J., and Manners, L. (2022) *Think Feel Do: A Wellbeing Handbook for Early Years Staff*. London Early Years Foundation.

O'Sullivan, J. (2025) How can a Continuing Professional Development Programme cultivate a community of sustainability informed Early Childhood Education and Care (ECEC) teacher/educators? (Unpublished Doctorate).

O'Toole, L., Walsh, G., Kerrins, L., Doherty, A., Forde, D., Kelleher, F., McCartney, S., Stafford, P., Stokes, T., Matson, S. and Mooney, E. (2023) A consultation with babies, toddlers and young children to inform the updating of Aistear, the Early Childhood Curriculum Framework (NCCA, 2009): Phase 1. Available at: <https://ncca.ie/media/6220/consultationreport.pdf>

- O'Toole, L., Ward, C., Walsh, G., Stokes, T., McCartney, S., Forde, D., Doherty, A. and Winter, F. (2024). A consultation with babies, toddlers and young children to inform the updating of *Aistear*, the Early Childhood Curriculum Framework (NCCA, 2009): Phase 2. Available at: https://ncca.ie/media/0tuhu0s1/phase2_consultation-with-babies-toddlers-and-youngchildren.pdf
- Pamuk, S., Öztürk, N., Kahriman Pamuk, D., Elmas, R., et al. (2021) A Collaboration Project on Education for Sustainability: Professional Development Needs of Turkish Preschool Teachers. *Journal of Theoretical Educational Science*, 14(4), 586-604.
- Paujik, Y.M., Miller, M., Gibson, M. and Walsh, K. (2021) 'Doing' socio-political sustainability in early childhood: Teacher-as-researcher reflective practices. *Global Studies of Childhood*, 11(3), pp.265-280.
- Pound, L. (2011) *Theories and Approaches to Learning in the Early Years*. Sage Publications.
- Purvis, B., Mao, Y. and Robinson, D. (2019) Three pillars of sustainability: in search of conceptual origins. *Sustainability science*, 14, pp.681-695.
- Ranta, M. (2023) Positioning the young child as a rights holder within ESD curricula making under Article 29 1 (e) of the United Nations Convention on the Rights of the Child. *An Leabhbh Óg*, 16 (1), pp.164-190. Ireland: OMEP Ireland.
- Reid, A. (2019) Climate Change Education and Research: Possibilities and Potentials versus Problems and Perils? [Editorial Material]. *Environmental Education Research* 25 (6) pp.767-790.
- Rogers, M. (2005) Social Sustainability and the Art of Engagement—the small towns: big picture experience. *Local Environment*. 10(2), pp.109-124.
- Santone, S. (2019) *Reframing the Curriculum Design for Social Justice and Sustainability*. London: Routledge.
- Sass, W., De Maeyer, S., Boeve-de Pauw, J. and Van Petegem, P. (2024). Effectiveness of education for sustainability: The importance of an action-oriented approach. *Environmental Education Research*, 30(4), pp.479-498.
- Scoffham, S. (2023) Developing sustainability education through small-scale interventions. In *Good Education in a Fragile World* (pp. 88-99). Routledge.
- Scottish Parliament (2009) *Climate Change (Scotland) Act 2009*. Available at: <https://www.legislation.gov.uk/asp/2009/12/data.htm>
- Sen, A. (2013) *A survey of sustainable development: social and economic dimensions* (Vol. 6). Island Press.
- Siraj-Blatchford, J. (2009) Education for Sustainable Development in Early Childhood. *International Journal of Early Childhood*, 41(2).
- Skehill, S. and Daly, M. (2023) Embedding sustainability in an updated *Aistear*. *An Leabhbh Óg*, 16 (1) pp.191-214. Ireland: OMEP Ireland.
- Skehill, S. and Flaherty, L. (2023) Empowering babies, toddlers, young children and educators as global citizens: Action research as a means to facilitate ESD in early years settings, *An Leabhbh Óg*, Vol. 16 pp 25-4

- Somerville, M. (2020) Posthuman theory and practice in early years learning. *Research handbook on childhoodnature: Assemblages of childhood and nature research*, pp.103-127.
- Spiteri, J. (2020). A reflection on research methods that engage young children with environmental sustainability, *An Leanbh Óg*, 13, pp.149–170. Ireland: OMEP Ireland.
- Stevenson, R.B. (2006) Tensions and transitions in policy discourse: Recontextualizing a decontextualized EE/ESD debate. *Environmental Education Research*, 12(3-4), pp.277-290.
- Strife, S. (2012) Children's Environmental Concerns: Expressing Ecophobia', *The Journal of Environmental Education*, 43(1), pp. 37–54.
- Taylor, A. and Green, L. (2022) *Barriers to Sustainability Education in Early Childhood: Teacher Perspectives*. *Sustainable Earth Reviews*, 5(2), pp. 65-78.
- Tilbury, D. (2011) Higher education for sustainability: a global overview of commitment and progress. *Higher education in the world*, 4(1), pp.18-28.
- Tsaliki, L., Karavela, M. and Papadopoulou, S. (2023) *Early Childhood Educators' Understanding of Sustainability: A Study in Greece*. *Journal of Early Childhood Education*, 34(5), pp. 103-120.
- Tuziak, A. (2010) Socio-economic aspects of sustainable development on global and local level. Available at SSRN 1638879.
- UNESCO (2012) *Education for Sustainable Development Sourcebook*. Paris: UNESCO. Available at: <https://unesdoc.unesco.org/ark:/48223/pf0000216383>
- UNESCO (2021) *Humanistic Futures of Learning: Perspectives from UNESCO Chairs and UNITWIN Networks*. Paris, UNESCO.
- UNESCO (2021) *Berlin Declaration on Education for Sustainable Development*. Available at: <https://unesdoc.unesco.org>
- UNESCO. (2024) *Strengthening our commitment to education for sustainable development*. Available at: <https://www.unesco.org/en/articles/strengthening-our-commitment-education-sustainable-development>
- UNESCO and United Nations Children's Fund (2024) *Global report on early childhood care and education: the right to a strong foundation*. Paris: UNESCO. Available at: <https://doi.org/10.54675/FWQA2113>
- UNICEF (2023) *UN Committee on the Rights of the Child calls on states to take action in first guidance on children's rights and the environment, with a focus on climate change*. Available at: <https://www.unicef.org.uk/press-releases/un-committee-on-the-rights-of-the-child-calls-on-states-to-take-action-in-first-guidance-on-childrens-rights-and-the-environment-with-a-focus-on-climate-change/>
- UNICEF. (2023). *Early Childhood Development: UNICEF's Vision for Every Child*. Available at: https://www.unicef.org/media/145336/file/Early_Childhood_Development_-_UNICEF_Vision_for_Every_Child.pdf
- Venkataraman, B. (2009) Education for sustainable development. *Environment: Science and Policy for Sustainable Development*, 51(2) pp. 8-10.

Višnjić-Jevtić, A., Lepičnik Vodopivec, J., Pribišev Beleslin, T. and Šindić, A., 2022. Unmasking sustainability in early childhood education: Teachers' voices from Bosnia and Herzegovina, Croatia, and Slovenia. *International journal of early childhood*, 54(1), pp.119-137.

Wals, A.E. (2017) Sustainability by default: Co-creating care and relationality through early childhood education. *International Journal of Early Childhood*, 49, pp.155-164.

Wandabi, D.(2019) Kenya's new curriculum mirrors education for sustainable development. Available at: <https://koeorg.wordpress.com/tag/unesco/>

Washinawatok, K., Rasmussen, C., Bang, M., Medin, D., Woodring, J., Waxman, S., Marin, A., Gurneau, J. and Faber, L., (2017) Children's play with a forest diorama as a window into ecological cognition. *Journal of Cognition and Development*, 18(5), pp.617-632.

Wellbeing of Future Generations (Wales) Act 2015. Available at: <https://www.gov.wales/well-being-future-generations-act-essentials-html>

Wolff, L.A., Sjöblom, P., Hofman-Bergholm, M. and Palmberg, I. (2017) High performance education fails in sustainability?—A reflection on Finnish primary teacher education. *Education sciences*, 7(1), p.32.

Wolff, Lili Ann, Tuula H. Skarstein, and Frode Skarstein. 2020. "The Mission of Early Childhood Education in the Anthropocene." *Education Sciences* 10 (2): 27.

<https://doi.org/10.3390/EDUCSCI10020027>. Multidisciplinary Digital Publishing Institute.

www.childrenandnature.org.

Zimmermann, M. and Müller, A. (2014) *Understanding Sustainability in Teacher Education: A German Study*. *International Journal of Science Education*, 36(8), pp. 1234-1248.



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