I acknowledge the use of Microsoft Editor on 12 July 2025 to check my spelling and grammar.

Reflection

Hello, my name is Natasha and my student number is 2308243. Participating in the John Muir Award has been an incredible journey that has strengthened my connection to the natural world and established my dedication to sustainability.

The Taff Trail and River Taff are the areas I selected for research for this project, which carry great significance for me personally. As a child, I enjoyed going for walks with my father by the river, where we could explore the natural beauty surrounding us. My passion of walking and being outside was fostered throughout visits to my nan and grandpa's house, where I would excitedly kindly request my grandpa for outdoor experiences. Those walks seemed to go on forever and I always enjoyed spending that special time in nature with my grandpa.

As a child, my dad would constantly point out different birds on our walks, explaining their wingspan and distinctive traits. His passion sparked my interest and desire to learn about the numerous bird species in the area. This personal connection to the environment made my research of the Taff Trail and River Taff even more important and inspirational for my project. Since walking in this area, I have realised exactly how beautiful my village is. The scenery, wildlife and changing seasons serve as reminders of the needs of environmental sustainability.

Throughout this experience I actively explored, understood and cared for my local environment, which deepened my appreciation for nature's delicate balance. I also discovered some outstanding discoveries, such as the bright damselfly and the numerous bird species that inhabit this area. Observing these creatures and analysing their life cycles demonstrated how linked our world is and how important it is to preserve these habitats.

I also realised how much I could do to help conserve resources. For example, I assisted with the design of a wildflower area in my classroom garden, encouraging children to plant and care for native flowers that benefit local animals. One of the most satisfying aspects of this project has been seeing the outcomes of the children's work. It has been amazing to see the blooms grow since the children planted the seeds. The children are overjoyed and amazed to see their efforts pay

off. One child looked at their flowers growing and grinned, saying, this is my favourite thing that I have done all year.

This moment of pride and wonder demonstrated how interesting and meaningful caring for the environment can be, especially when children witness the immediate benefits of their efforts.

In addition, I have been maintaining an area of my garden to create a haven for insects, birds and tiny creatures. Sharing photos and insights with my school community, family and friends has helped to raise awareness of local biodiversity and the significance of maintaining it. This event has greatly improved my understanding of sustainability. I now realise that little acts, such as eliminating lawn mowing to allow native plants to thrive or building wildlife-friendly areas, can have a significant impact. It has made me more aware of my daily decisions and the necessity of protecting natural resources for future generations.

The initiative has also shaped my perspective of caring for the environment. I am inspired more to campaign for conservation, educate others about local species and support legislation that encourage environmental sustainability. Faced with obstacles such as limited resources or an initial lack of awareness, I learnt to be patient and resourceful, frequently seeking information and working together with others to overcome obstacles.

I imagine that people can benefit from my experience by recognising that everyone plays a role in conservation. Whether through little gestures, education or community involvement, every effort helps to protect our planet. I hope that my adventure motivates others to investigate their local ecosystem, appreciate its beauty and take active actions to preserve it. The one significant thing I want my audience to remember is that nature's wonders surround us and by adopting small, meaningful actions, individuals can make a long-term difference in conserving the environment's health and beauty for future generations.

Now I will go onto my academic part.

Sustainability

The idea of sustainability in early childhood education will be investigated in this research, with a focus on how it fits into the framework of Education for Sustainable Development. To assess the effectiveness and influence of these pedagogical approaches in promoting sustainable awareness and practices among young children, in addition to critically examine experiential learning approaches, such as hands-on activities and nature-based learning.

Sustainability is the continued ability to sustain life by maintaining biodiversity, effectively managing resources and balancing environmental, social, cultural and economic variables for long-term wellbeing (Damico, Aulicino and Pasquale, 2022; Sakalasooriya, 2021). Living sustainably entails long-term care for the Earth, addressing concerns such as climate change, energy, waste, pollution and biodiversity to protect human and environmental health (John Muir Trust, 2025). It is necessary to operate within planetary boundaries and promote a just, fair and peaceful society by comprehending the three pillars of sustainability: environmental, social and economic (UNESCO, 2013, cited in John Muir Trust, 2025; Damico, Aulicino and Pasquale, 2022).

Cultural values and nature exposure affect participation in sustainability, building links with biodiversity and climate change (John Muir Trust, 2025). Addressing social challenges including poverty, health, education, gender equality and water access, as well as fostering fair labour, economic growth and resilience, is necessary for a more equitable future (John Muir Trust, 2025). Its historical roots highlight its significance and expanding sustainability necessitates a cross-disciplinary, innovative approach (Sakalasooriya, 2021; Damico, Aulicino and Pasquale, 2022).

Sustainability is frequently misinterpreted as superficial environmental trends rather than a focus on long-term viability (Engelmen, 2013, cited in Sakalasooriya, 2021). Inconsistent definitions and unclear implementation tactics are two major challenges (Moore *et al.*, 2017). Recent initiatives, such as the April 2022 education strategy, aim to engage children in nature and raise climate awareness in line with global sustainable development goals (Department of Education, 2024; Boyd *et al.*, 2022). Furthermore, by teaching children's environmental values and skills, early childhood education promotes sustainability. Playing with nature fosters environmental

awareness and respect that frequently lasts into adulthood (Wilson, 2020; Worldwide Fund for Nature WWF, 2022).

The United Nations' Sustainable Development Goals (SDGs), which were formed in 2015 and are set to be achieved by 2030, seek to foster a more equal, healthy and sustainable world through social, ecological and collaborative endeavours. These goals, which serve as a global framework, highlight individuals' and governments' moral responsibility to promote sustainability and preserve life on Earth (Dixit and Chaudhary, 2020).

The Well-being of Future Generations (Wales) Act mandates forty-four entities to work towards seven goals, including sustainable development, responsible citizenship and community involvement (United Kingdom National Commission, 2017; Glover, 2023). According to the Brundtland definition, it promotes public authorities to assess the long-term effects and address concerns early on (World Commission on Environment and Development, 1987, cited in Jenkins, 2018; Welsh Government, 2019). The Act seeks to increase wellbeing in the economic, social, environmental and cultural sectors through collaborative, long-term initiatives, building a globally aware Wales that balances local and global obligations (Well-being of Future Generations (Wales) Act 2015).

Sustainable development frequently views the environment primarily as an economic resource, sometimes at the expense of social concerns (Jenkins, 2018). Modern perspectives advocate for an integrated approach that prioritises human wellbeing, environmental, social and economic security, as well as intergenerational and global equity (Kemp and Scoffham, 2022). International frameworks such as the Convention on the Rights of the Child reinforce these ideas by supporting children's rights, social fairness and future-oriented obligations (Croke *et al.*, 2021).

Education for Sustainable Development

Education for Sustainable Development (ESD) encourages child-led, experiential activities including community gardens, nature walks and scavenger hunts to enhance engagement, outdoor connection and resource conservation (WWF, 2022; The Sustainables Academy, 2024). It addresses concerns such as shortages of resources and climate change through combining economic, environmental and

social perspectives, with early childhood education playing a significant role in establishing sustainability principles (Siraj-Blatchford, Smith and Samuelsson, 2021).

Cynefin represents a profound connection to place in Wales's new curriculum, which celebrates Wales's variety, heritage and languages in order to build pride, identity, empathy and welfare while also fostering citizenship (Adams, 2024; Welsh Government, 2022). It fosters a sense of belonging and cultural appreciation (Chapman *et al.*, 2023) through engaging in experiential sustainability activities such as model-building, habitat exploration and energy/waste investigations, which promote collaboration and environmental understanding (The Sustainables Academy, 2024). It is consistent with frameworks such as the Well-being of Future Generations Act and the United Nations, emphasising innovation and global responsibility while making environmental impacts real through immersive problem-solving (Jones, 2021; Welsh Government, 2022).

Teachers and policymakers all believe that forming responsible, sustainable individuals requires early ecological, economics and society education. Today, ESD integrates equality, ecological and economics to provide life-changing experiences (Davis, 2009, cited in Nikiforidou, Lavin-Miles and Luff, 2019). Advantages include fostering equity, setting goals and exchanging best practices (Nikiforidou, Lavin-Miles and Luff, 2019). Based on social and environmental justice, the SDGs seek to create a just and peaceful world (United Nations, 2021). Preventing harm and promoting sustainability require early education (UNESCO, 2014, cited in Collins and Garrity, 2023). Welsh projects are prime examples of this emphasis (Jenkins, 2018). Through changing attitudes and actions, education may enable people to tackle global issues and create resilient communities, according to UNESCO (United Kingdom National Commission, 2017).

To solve problems such as poverty, substandard housing and pollution, Down-to-Earth, a non-profit organisation established in Swansea, educates impoverished areas about sustainability (United Kingdom National Commission, 2017). Fostering sustainable behaviours and societal change requires education, particularly for youngsters (Davis, 2015, cited in Tinney and Hirst, 2017). According to Emerson and Siraj-Blatchford (2017) international frameworks emphasise the significance of self-

awareness, ecological interdependence and social participation in child development and education.

Children's rights and sustainable development have progressed jointly during the last three decades (Kilkelly, 2020). Wales's objectives centre on advancing equality, justice and wellbeing while staying within ecological limits (Croke *et al.*, 2021). The Welsh curriculum integrates Education for Sustainable Development and Global Citizenship across topics to promote ethical thought and behaviour change, resulting in the development of capable, moral and healthy citizens (Welsh Government, 2019; Jones, 2022).

Hands-on Learning

Children's attention, emotions and learning are improved by hands-on activities (Prokop and Fančovičová, 2016). Curiosity-driven active, hands on learning was encouraged by Montessori and Dewey (Vanhorn *et al.*, 2019). The repeated cycle of concrete experience, reflection, conceptualisation and experimentation that turns experiences into knowledge is described by Kolb's theory (Novani and Arief, 2021).

There was a hands-on learning component to the John Muir Award, as children planted seeds to help preserve the environment. Early childhood learning through hands-on activities promotes scientific engagement while also developing abilities, self-reliance and self-worth (Yilmaz, Bekirler and Sigritmac, 2024). Piaget's theory highlights how children actively learn about the world through exploration (Miller, 2022). However, teachers often overlook these strategies due to busy schedules and limited resources, which underscores the need for focused professional development (Musharrat, 2020).

Through allowing children direct access to physical items, transforming abstract concepts into tangible understanding and encouraging active engagement has a direct approach facilitates experiential learning (Ekwueme, Ekon and Ezenwa-Nebife, 2015). Froebel emphasised introducing children to the elements of nature to encourage their curiosity, inquiry and play. The gardens serve as an example of how living things grow and meet their requirements (Tovey, 2020). This approach could increase children's engagement and better prepare them for challenges in the future (Timbrell, 2023).

Learning from Nature

Outdoor settings greatly enhance children's learning, development and wellbeing (Kiviranta *et al.*, 2023). However, since teacher's attitudes are influenced by their training and experiences, curricula frequently lack a significant environmental focus (Ray and Jakubec, 2018; Du Plessis, 2023). Nature-based curricula that encourage equality, sustainability and wellbeing are supported by technological advancements (Du Plessis and Postlewaight, 2024). In Wales, where the curriculum places a strong emphasis on fostering a connection with environment, outdoor learning has gained popularity and improved children's wellbeing (Prince and Diggory, 2022; Natural Resources Wales, 2022). Through fostering knowledge, connections and motivation all of which are indispensable to sustainable growth nature-based education encourages environmental behaviours (Otto and Pensini, 2017; Michelsen and Fischer, 2017). According to Cooper (2016) and Craig *et al.* (2024) playing outside fosters self-control, cognitive and physical development, academic success, self-worth and environmental awareness. Early meaningful experiences with nature promote children's general wellbeing by influencing behavioural, health and developmental outcomes (Craig *et al.*, 2024).

Froebel's theory highlights the importance of light, space and pure air in development, comparing children's growth to the development of plants (Josephidou and Kemp, 2021). Growing nature-focused strategies create real connections that are advantageous to everyone involved (Josephidou and Kemp, 2022). Children use their senses to perceive nature, which emphasises the value of having a connection to the natural world (Arola *et al.*, 2023). Through increasing focus and activity, nature exposure can help reduce inequalities. It also improves mental and physical health, improving self-concept, social skills, resilience (Camasso and Jagannathan, 2017; Coates and Pimlott-Wilson, 2018; Fyfe-Johnson *et al.*, 2021; Johnstone *et al.*, 2022; Miller *et al.*, 2021).

Despite these advantages, weather, safety concerns, space constraints and hectic schedules contribute to a global drop in outdoor exercise (Bilton, 2020; Lavafe *et al.*, 2021; Sandseter *et al.*, 2020). Development is supported through access to natural environments and indoor-outdoor transitions, although outdoor time remains limited (Chaney, 2021; Mann *et al.*, 2022). In order to obtain the greatest value out of

outdoor activities, educators and families could work together (Frances *et al.*, 2024). Communities gain from initiatives such as Eco-Schools, which foster sustainability, ecological awareness and constructive development (Liverpool John Moores University, 2016).

Critical Evaluation

Forest Schools are consistent with constructivist education, which emphasises experiential learning in the outdoors (Coates and Pimlott-Wilson, 2018; Harris, 2015). The process-oriented, child-led activities in natural environments foster independence, communication, problem-solving, confidence, taking risks and connection (Barrable and Arvanitis, 2018; Leather, 2018; Müller *et al.*, 2017; Waite and Goodenough, 2018). Natural settings with elements such as water and rocks encourage imagination, inquiry and learning (Hardwood, Huang and Somma, 2022). Auto parts and even man-made waste may attract attention, demonstrating how interaction with nature promotes creative teaching methods (Warden, 2022).

The advantages of encouraging creativity through internal cognition and nature immersion, while mind-wandering encourages associative thinking, which is indispensable to creative processes (Schooler *et al.*, 2011, cited in Williams *et al.*, 2018), exposure to natural environments boosts creativity by activating attention and executive networks (Williams *et al.*, 2018; Vella-Brodrick, Lewis and Gilowska, 2024).

Both indoor and outdoor environments are ideal for children's learning, with outdoor environments elevating mood, lowering anxiety and increasing concentration (Kuo, Barnes and Jordan, 2019; Harvey *et al.*, 2019). These advantages increase children's efficacy and self-confidence (Fuller, Powell and Fox, 2017). According to Kiewra and Veselack (2016) and Kuo, Barnes and Jordan (2019) exploration promotes tenacity, creativity, physical activity and social skills. Children's connection to nature is strengthened through nature-based activities that promote curiosity, emotional growth and physical development (Arts Council of Wales, 2023). Outdoor activities and gardening may assist children develop a respect for all living things and a connection to the environment. Teachers could enhance understanding of these relationships through encouraging an appreciation of the wonders of nature (d'Ascoli and Hunter, 2022).

Froebel highlighted the need of fostering children's spiritual ties to nature, warning that these ties might weaken in the absence of adult supervision. Cognitive and sensory development are enhanced by hands-on activities involving elements such as fire, water, air and soil (d'Ascoli and Hunter, 2022). Positive human-environment interactions are associated with health, academic achievement, ecological practices and wellbeing (Barrable *et al.*, 2021). Children benefit from spending more time outside, yet obstacles including constrained areas, severe weather and a lack of outside experience make outdoor learning difficult (Patchen *et al.*, 2022).

Conclusion

Sustainability involves a comprehensive strategy that incorporates environmental, social and economic aspects to maintain the long-term health of the environment and society. To promote environmental awareness and ethical behaviour, education particularly outdoor and experience learning is significant. Forest Schools is one initiative that helps children grow and strengthens their bond with the natural world. Encouraging environmentally conscientious people who can tackle global issues and advance sustainable futures requires removing obstacles to outdoor education.

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