

THE RELATIONSHIP BETWEEN CHILDREN'S PERCEPTIONS OF THE NATURAL ENVIRONMENT AND SOLVING ENVIRONMENTAL PROBLEMS

Sarah O'Malley

Abstract: The capacity of environmental education to solve the ecological crises by producing an environmentally sustainable society is uncertain. The marginalisation of environmental education (EE) in mainstream education, its precarious position within broader concepts of (environmental) sustainability and the lack of critical evaluation of current practices finds it characterised by anecdotal narratives. It is claimed that modernisation is leading to children's growing (dis)connect with the natural environment and is bringing additional responsibility to the relationship between society and the natural environment. This article adds to the discussion around understanding how children interpret the natural environment through an in-depth examination of the dynamic relationships between EE, development education (DE) and education for sustainable development (ESD). As the consequences of climate change are of increasing concern worldwide so too is the need to equip society with the necessary skills to address the issues involved. How and to what extent children interpret or relate to those issues is crucial to the overall environmental sustainability process.

Key words: Environmental education; education for sustainable development; children; natural environment.

This article seeks to add to the discussion around understanding how children interpret the natural environment by providing empirical evidence as to the complexities that underpin interpretations of the natural environment and its associated problems. The environmental and social consequences of climate change are of increasing concern worldwide. While the debates on climate change continue to be fraught with procrastination and inaction, the negative aspects of human actions on the biophysical environment becomes more evident week by week. Global warming, the diminishing of natural resources

and the extinction of biodiversity all reflect the unsustainable patterns of (over)development, production, and consumption (Hynes, 2014; IPCC, 2014a). There are concerns that children, the future policymakers and key civic leaders, lack (or have lost) important outdoor experiences and are ill-equipped to develop the necessary skills to prevent further environmental damage (Kahn and Kellert, 2002; Malone, 2007; Saylan and Blumstein, 2011). Closely aligned to the aims values and outcomes of DE, EE seeks to address global environmental issues through informal and formal education. DE plays a key role in developing knowledge of global environmental issues through active, inclusive, participatory learning and teaching processes (Department of Foreign Affairs, 2006: 12). Considering the ecological crisis shows no sign of abating there are questions to be asked regarding the expectations of DE and EE to solve environmental problems.

Much of the existing EE literature focuses on how changes in the physical landscape, including (sub)urbanisation has altered the relationship between children and the natural environment. Publications deal with the various aspects of children's contact with the outdoors to enhance their experiences through an EE initiative or the promotion of EE in schools (Elliot, 1999; Francis et al., 2013; Lindemann–Matthies, 2005; RSPB, 2013). This is often accompanied by a variety of new initiatives that emphasise effective communication between individuals, the community, and school environment to promote EE efforts overall (Cornell, 1998; Kellert, 2002; Louv, 2005; Sobel, 2008). Though a broad range of EE studies exist, the lack of diversification and prevailing quantitative evidence has led to fragmentation and repetition in the field and more cognisance needs to be taken of children's actual experiences.

In Ireland, ambiguity exists between EE and other types of education such as education for sustainable development (ESD) and DE (Hogan and Tormey, 2008; O'Malley, 2014). This article draws upon the findings of empirical research carried out as part of a PhD thesis on a sociological study of EE in Ireland. Despite the dominant arguments that children are disconnected from the natural environment, children who were

interviewed were found to be environmentally knowledgeable, portrayed a sense of attachment and were informed as to the implications of pollution and mismanagement of wider habitats and ecosystems. On the other hand, analysis found EE efforts to be underpinned by two conflicting conceptual strands. Strand 1 prioritises experiential humanistic approaches advocates a socially critical approach to values and beliefs about the natural environment. Strand 2 promotes rational educational approaches that emphasise the management of this relationship in order to solve environmental problems. It concentrates on the transfer of knowledge from teacher to learner, desired educational outcomes and is more often delivered indoors. Recent contributions state that EE has failed in terms of changing behaviours ‘to stave off the detrimental effects of climate change’ (Saylan and Blumstein, 2011: 1). This paper argues that the notion of ‘the environment’ reflected in EE has consequences for DE and is crucial to understanding the type of relationship that is promoted between children and the natural environment. What is unclear within the context of climate change is whether both DE and EE equip society with the necessary skills and knowledge to address the urgent need for sustainability. The article highlights that real gaps and problems are emerging not because current educational approaches have failed but because people connect with the natural environment very differently. A truly reflective multi-disciplinary approach to teaching (and indeed learning) about our natural environment is of critical importance at this juncture.

Development education, environmental education and human-environment relations

Climate change is not only a threat to the environment but to global security and economic prosperity. Evidence suggests that developing countries, already struggling with social, economic and environmental issues, will suffer most from greater weather extremes and increasing incidences of droughts and floods (UNICEF, 2012: 2). The growing body of scientific publications that assess the impact and vulnerability of climate change doubled between 2005 and 2010 (IPCC, 2014b: 4). The focus on adaptation also suggests that climate change has set in motion a rewriting of our

connection with the biophysical world overall (Fox, 2014: 104). In the last few decades, climate change and environmental education (CCEE) and ESD have become major tools for protecting the environment and ensuring sustainable development (UNICEF, 2012: 3). DE seeks to develop strategies to increase teachers' understanding of the social aspects of climate change and provide the framework for a child-centred participatory approach to environmental awareness and nature that can be incorporated into the design and operation of the school curriculum.

Although coming from different perspectives – DE addressing issues of human injustices and inequality while EE focused on solving environmental problems – both share common characteristics. DE and EE emerged from different traditions with ESD drawing ‘significantly from the prior work of both’ (Hogan and Tormey, 2008: 5). ESD emphasises the need to ‘change personal/individual and social relations to the local and global ecosystems’ as well as behaviours around consumption and production (Wade and Parker, 2009: 6). Firstly, they both promote the development of knowledge and skills to promote sustainable actions within society. Secondly, they are said to be multidisciplinary and to occur in both formal and informal educational contexts. Yet, it was more often the case that DE work did not emphasise the importance of environmental sustainability, and that EE practitioners often neglected global development and injustices (Hogan and Tormey, 2008: 5). Many argue that EE does not address global environmental issues or ‘offset the severity of environmental degradation and serious problems associated with human reproductivity’ (Hungerford and Volk, 1990: 15). However, the concepts do overlap as ‘global poverty could not be considered in isolation of the environment and vice versa’ (ibid: 14).

Many refer to the biological and emotional dimensions when trying to capture learners' relationship with the natural world in modern, developed societies, and their potential impact on society – environment relations more generally. Edward O. Wilson (1984), for example, pays particular attention to biological primers of humans' relationship with nature. He coined the biophilia hypothesis to describe humans' innate ‘urge to affiliate with other

forms of life' (cited in Kahn and Kellert, 2002: 1). He later (1993) lists the possible emotions on encountering natural things as 'attraction to aversion, from awe to indifference, [and] from peacefulness to fear-driven anxiety' (cited in Verbeek and Frans, 2002: 1). The scientific perspective suggests that given the opportunity to access, interact with or observe the outdoors, people instinctively feel an emotional and psychological bond. This paper acknowledges the importance of this argument for environmental conservation and wider sustainability debates. However, if our connection with the natural environment is innate why is there an ecological crisis? The hypothesis focuses on a particular perception of what a connection ought to be and must 'extend beyond its genetic base' to include the influence of social and cultural factors in shaping people's relationship with the natural world (Kahn, 1997: 20).

The argument that culture and society play a key role in shaping people's relationship with the natural world is not new. Social sciences take the position that cultures define our positions towards the natural world. American anthropologist Clifford Geertz (1966: 7), for example, states that 'there is no such thing as a human nature independent of culture' rather both are intertwined. Children also learn and develop their attitudes toward the natural environment through socialisation processes. However, until recently, traditional views of the socialisation processes viewed children as playing a passive role within the context of their families and communities (Corcoran et al., 2009). The view that children are passive recipients of socialisation processes is criticised yet research continues to develop pedagogical approaches without understanding children's experiences (Nagel, 2004). Recent studies find that children are in fact active agents in 'creating their own cultures and life world' (Corcoran et al., 2009: 52). Children have expectations as to the structure and purpose of their psychical environment to enable exploration and creativity. Personal, social and physical development is closely linked to children's appropriation of a landscape and sense of belonging to it (ibid: 38). How culture and society shape the relationship addresses current gaps in social scientific research on the nature of children's connection with the natural environment.

Environmental education: A critical review

The majority of EE definitions adopt a tone that often marginalises any non-cognitive connections with the natural environment, including people's attachment to a particular landscape or view that shapes their sense of place, or any emotional connection (Stapp et al., 1969; UNESCO, 1977; WCED, 1987). More recent definitions of EE are closely linked to education for sustainability and/or ESD. The merging of EE with broader sustainability concepts is further evident in *Agenda 21*, an action programme devised at the United Nations Conference on Environment and Development (1992), otherwise known as the Rio Summit. EE plays a prominent role here in promoting and implementing ESD. The linear models and the amalgamation with emerging concepts of sustainable development and ESD had the effect of undermining instead of establishing EE, its role within formal education and the global environmental context. Indeed, the overall concept of sustainable development has received some criticism with academics and researchers taking issue with the notion of overcoming the ecological crisis with sustained economic growth focused on additional development, production and consumption. Some, for example, point to an over-reliance on the power of technology, while others still focus attention on the disparity between the rich global North and the poorer developing nations of the South (for a good critique of such criticism see Lippert, 2004). The absence of an empathetic relationship with the natural environment in definitions is in direct conflict to arguments in contemporary debate that emphasise the importance of holistic and experiential education (eftec, 2011; Loughland et al., 2003; Louv, 2005; Ofsted, 2008; RSPB, 2013).

Conceptual investigations are not part of research, with few researchers addressing conceptual tensions or the diverse understandings of dominant concepts such as 'the environment' and 'nature' from the perspective of the learner (Bonnett and Williams, 1998; Department of Foreign Affairs, 2006; Hogan and Tormey, 2008; Rickinson, 2001: 275; Van Wieren and Kellert, 2013: 262; Wade, 2008). EE research routinely refers to concepts of nature, the environment, the natural world, biodiversity, physical environment, and the outdoors, which coexist alongside each other creating

an overwhelming array of terminology and meanings. There are studies that investigate how young people conceptualise the environment (Loughland et al., 2003) or nature (Bonnett, 2007; Schultz, 2001), but a critical examination of the concepts of the natural environment overall or how learners perceive the natural world is minimal.

There is confusion as to whether different types of EE exist and to what extent concepts differ inside or outside formal education. Being firmly embedded in the formal education system, EE is thus believed to be in a good position to promote, from an early age, the adoption of long-term environmental attitudes, behaviours, and active participation with environmental issues. Similarly, the majority of research continues to focus on formal education as the primary avenue for dissemination (eftec, 2011; Natural England, 2010; Ofsted, 2008; Play England, 2008). However, a conflict exists as EE is understood to contradict the dominant functions of education. It encourages learners to be active thinkers yet within formal education learners are ‘recipient of other people’s knowledge and thinking’ (Stevenson, 2007: 143, 147). This somewhat troublesome relationship causes problems for EE as ‘it does not fit neatly into any traditional subject areas’, leaving it vulnerable to marginalisation (Gough and Gough, 2010: 339). The purpose of education is one of on-going contested debates with many criticising its preoccupation with compartmentalisation and intellect (Blewitt, 2010: 3469; Moore, 1982; Robinson, 2008: 13; Share et al., 2007; Sterling, 2001: 25; Stevenson, 2007: 114). In contrast, EE also focuses on developing a sense of place or belonging to the natural environment through firsthand experiences outdoors, with no specific educational outcomes in mind. It is argued that these two processes are diametrically opposed and conceptual confusion prevails in the EE sector which hampers more concerted efforts to address and potentially improve its overall effectiveness.

Empirical research in the Republic of Ireland context

Referring to empirical research on EE from the Republic of Ireland context, two types of environmental messages transfer to the learner and how it impacts on DE thinking. The research carried out consisted of qualitative

data of 47 semi-structured interviews with environmental educators (n = 18), school staff (n = 11), and families (parents and their children) (n = 18). Participation was voluntary and all interviews occurred face-to-face. The interviews were semi-structured in approach to ensure comparability between interviewee groupings but, at the same time, gave each interviewee the opportunity to raise any issues that were particularly relevant to them. The aim of the research was to theoretically explore and empirically investigate the underpinning concepts of EE provision in Ireland and to what extent they (re)connect children with the natural environment.

The questions focused on the purpose of EE, educational outcomes (if any), and its degree of flexibility within formal education. This provided the opportunity to investigate generational differences (if any) regarding children's relationship with the natural environment, the influence of wider societal, economic, and political developments and the role of EE within that context. Eleven semi-structured interviews were conducted with teaching staff from six primary schools within the Galway region. The classification of schools followed a number of headings including, region (rural/urban/city centre) and socioeconomic profile of pupils (Galway City Development Board, 2009). One island school, off the west coast of Ireland, was chosen for a comparative analysis. Fieldwork also included semi-structured interviews with children up to fourteen years of age, and their parent(s) who were recruited through each primary school. To encourage participation, an information flyer promoting the project was distributed to school staff. The views of children and of their parents regarding education, EE, and their relationship with the natural environment were crucial to understanding the learners' perceptions of the relevancy and (in)effectiveness of EE. The outcomes from this research demonstrate that natural environment concepts that underpin effective EE do not fully deal with central environmental issues and could develop a sense of helplessness instead of empowerment towards the ecological crises overall.

The children interviewed were found to be environmentally informed, knowledgeable and portrayed a sense of attachment with their

natural surroundings. The majority understood the implications of pollution and mismanagement of wider habitats and ecosystems. However, a balance between rational and humanistic approaches in EE is required to develop the intimate relationship further and emphasise the social, economic, and environmental benefits that underpin it. The dominance of a purposive concept of EE overlooks the benefits of regular experiential education outdoors. Some, for example, referred to 'Fair Trade' and 'organic' products in the home and associations with sustainable environmental behaviours. As the child is of a primary school age, the trademark recognition is impressive as it connects a subtle analogy that consuming a particular product is good for the environment. However, one might question how the ideology behind Fair Trade influences a long-term empathetic relationship between a child and his/her natural surroundings. One boy, when asked about the benefits of Fair Trade, associated eating the produce with doing something positive for the natural environment, 'Ya and you can eat it and that's Fair Trade!' That is not to say that certain programmes ignore that aspect, but feedback from the majority of children suggests that responsible resource management *is* EE. There is a certain disregard for holistic EE which is child-centred as emphasis is placed on solving global environmental problems whose 'steps' are more suited to the structure of the education system. Children enjoy EE and the different educational experiences provided, but considering the ecological crises a more inclusive standard of EE is necessary.

On the other hand, children showed ingenuity and enjoyment when discussing what they did outside of the formal education system. Many spoke about building forts, climbing trees or taking part in activities with friends. One child when asked if he liked playing outside, simply said 'Ya' and when asked why; 'because it's more fun outside'. Another identified the outdoors as fun, enjoyment, exploration and an opportunity to play Star Wars. The outdoors offers a blank canvas for a curious and imaginative mind, a source of adventure and play.

“[W]e play in trees we have trees around the side there we go down the field down the back we go swimming we play on the trampoline em I play soccer and we play like Star Wars.”

There were differences in the size of areas to roam and access to the natural environment as described by children. However, once outdoors how they respond in the particular space is essentially the same. The majority of children living in (sub)urban areas or housing estates, for example, described their favourite garden animal and what it eats, with some distinctions, for example, seasonal visitors such as lapwings. Children living on the rural island to a certain extent have a larger repertoire of animals as sea birds, dolphins and seals were part of their immediate natural surroundings. Some children in other rural areas felt a sense of ownership, for example naming a rocky island close to the house ‘Tracey Island’ from Thunderbirds and then ‘Death Star’ from the movie Star Wars. Children in more built up areas revealed a sense of attachment to special places such as a hideout, den or fort in the garden for recreation or the opportunity to be alone. The children living on the rural island explore a wider area, for example, a woodland and climbing a large hill that is very much outside of the ‘garden parameter’ of more urban areas. This relationship reveals significant evidence as to the construct of a connection in children’s social and cultural frameworks and resourcefulness irrespective of the increase of physical or social barriers in recent decades (Corcoran et al., 2009; Linzmayer and Halpenny, 2013).

Discourse surrounding children’s growing (dis)connection from the natural environment is deeply rooted in EE research and practices. What is regarded as effective EE is subjective and the ‘connection’ provisions seek to build between children and their natural surroundings is inherently complex. This is useful to DE research as it illustrates how provisions are underpinned by differing educational approaches and concepts of the natural environment that are at times diametrically opposed in meaning. This raises questions regarding the expectations of DE and EE to solve environmental problems when a critical understanding of what a (dis)connection is and an underestimation of children’s ability to engage with and connect with the

natural world are absent. To what extent does the current climate change narrative facilitate or enhance children's relationship with their natural surroundings?

Conclusion

Compared to adults, children are among those most susceptible to the negative effects of environmental harm and more vulnerable to conditions such as poor air quality, contaminated water supply, and extreme heat. But children should not be considered passive or helpless victims of such conditions. They are powerful agents of change and education is one of the best ways of strengthening community resilience and providing pathways to negate the worst effects of climate change. 'Effective' approaches to EE closely resemble a concept of continuous development whereby environmental resources and problems are managed through rational educational paradigms. This does not challenge environmental values and beliefs but rather monitors behaviours that justify current trends of environmental consumption and economic growth. In fact certain provisions clearly identify with 'green consumerism' and enhance children's ability to recognise environmentally friendly produce, for example, an organic vegetable garden or Fair Trade produce. This does not fully deal with that central (environmental) issue and could develop a sense of helplessness instead of empowerment towards the ecological crises. On the other hand, the more holistic approaches to EE did not address this gap and were not recognised by the children as educational. This is possibly due to the experiential format not making a clear statement in the same way more formal structured programmes associated with global environmental issues. This suggests that experiential programmes are not clearly defined and are open to interpretation by the participants. This leads to an enjoyable educational experience that often leaves the perception of a nice day out. The inconsistency of experiential programmes in comparison to more effective rational approaches leaves it marginalised and largely ineffective as an educational resource for students. What we take from this paper has consequences for DE understanding. It suggests that children identifying the natural environment as a problem to solve can have the effect that children

follow a popular or organised concept rather than thinking for themselves. This sheds new light on how children socially construct notions of the natural environment, how their perceptions can be influenced by broader social, cultural and economic dimensions and, importantly, the role this plays in the overall environmental sustainability process.

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Sarah O'Malley is Outdoor Tutor and Research Coordinator with The Bay Trust, Kent, UK. She develops collaborative research on the outcomes and benefits of programmes at Rippledown, The Bay Trust's environmental education centre. An Irish Research Council Scholar, she was awarded her PhD in the School of Political Science and Sociology at National University Ireland (NUI) Galway. Sarah's research critically examined the underpinning concepts of environmental education provisions and to what extent they (re)connect children with the natural environment. She has extensive work experience in teaching, managing and developing programmes on environmental topics to students at all levels and the general public.