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(RE)CONNECTING CHILDREN WITH NATURE?
A SOCIOLOGICAL STUDY OF ENVIRONMENTAL EDUCATION IN IRELAND

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Submitted for the degree of Doctor of Philosophy
November, 2014
I can enjoy society in a room; but out of doors, nature is company enough for me

William Hazlitt
Abstract

The outcome of environmental education to solve the ecological crises by producing an environmentally sustainable society is uncertain. The marginalisation of environmental education 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 brings additional responsibility to the relationship between society and the natural environment. But does environmental education (re)connect children with the natural environment, and to what extent is it (in)effective?

Through a detailed examination of the evolution of environmental education in Ireland, this thesis makes an original contribution to the field of environmental education research while also offering useful insights for environmental education policy and practice. Qualitative data from 47 semi-structured interviews with environmental educators, school staff parents and children provide valuable insight into the evolution of teaching and learning about environmental issues in Ireland. The project finds that today the transformative impact of environmental education is severely constrained by its close links to mainstream education. Although environmental education adapts and partially resists certain constraining aspects of the education system, it is nevertheless directed and guided by the latter. Conventional programmes tend to promote the management and monitoring of natural resources as a way of solving environmental problems. Opportunities for informal and unstructured, experiential education outdoors, with no specific educational outcome in mind are increasingly scarce. On the other hand, changes in society-environment relations coincide with changes in what environmental education did, does and ought to achieve, as expressed by adult and child interviewees.

The thesis recommends that environmental education adopts a more self-critical and reflective approach that takes into consideration wider social conditions that fuel and
accelerate the growing gap between children and their natural environment. It is argued that environmental education needs to recognise that learners have the capacity to be educated in addition to school in the home and community environments. Specifically, the findings point to the need for the environmental education sector to rediscover and attach renewed value to children’s knowledge, considering their boundless creative ingenuity and the role that plays in solving global environmental problems.
Acknowledgements

Researching and writing this thesis has been a challenging and enriching journey. This experience would not have been possible without the many inspirational people who provided both advice and support. With that I begin by thanking my supervisor Dr. Henrike Rau for listening, understanding, probably repeating herself on more than one occasion but always insisting on her door being wide open for guidance, encouragement and thought-provoking conversation. I wish to thank her for her patience, compassion and keeping me motivated throughout.

I also want express my gratitude to the members of my Graduate Research Committee, Dr. Anne Byrne and Dr. Su-ming Khoo, for their advice, encouragement, and generosity in sharing invaluable knowledge and expertise. In addition, I would like to thank Prof. Chris Curtin, Kay Donohue, and all members of staff of the School of Political Science and Sociology, NUI, Galway for their support and advice. Thank you to the members of the Academic Writing Club for valuable feedback, comradery, laughter and entertaining discussions.

I wish to thank all my participants for their interest and willingness to give time to the study. This project would not have been possible without their input and willingness to share their opinions, knowledge and experiences with me.

I would like to thank my friends and family, my parents, Elaine and Michael O’Malley, and brother Andrew who have been a constant source of support, believing in my ability and encouraging me until the very end. Without their continued guidance, and patience this thesis would not have been possible.

Finally, I dedicate this thesis to the memory of my eldest brother, Edward. As sure as a wave rises and falls you are never far from my thoughts.
Statement of Originality

I, Sarah O’Malley, hereby certify that all of the work described within this thesis is the original work of the author. Any published (or unpublished) ideas and/or techniques from the work of others are fully acknowledged in accordance with the standard referencing practices.

(Sarah O’Malley, November, 2014)
Table of Contents

Abstract........................................................................................................................................... iii  
Acknowledgements.......................................................................................................................... v  
Statement of Originality.................................................................................................................. vi  
Table of Contents........................................................................................................................... vii  
List of Figures.................................................................................................................................. x  
List of Tables .................................................................................................................................. xi  
Chapter 1 Introducing the topic of environmental education......................................................... 1  
  1.1 Introduction............................................................................................................................ 1  
  1.2 A case for Ireland................................................................................................................... 6  
  1.3 Research aims and objectives ............................................................................................ 11  
  1.4 Methodology ....................................................................................................................... 13  
    1.4.1 Data analysis process .................................................................................................... 20  
  1.5 Thesis roadmap.................................................................................................................... 23  
Chapter 2 Bridging a gap: Environmental education and the (dis)connection hypothesis.......... 28  
  2.1 Introduction.......................................................................................................................... 28  
  2.2 Challenging the assumptions of a disconnection hypothesis ............................................. 29  
    2.2.1 Measuring children’s connection: Some methodological considerations.................. 37  
  2.3 Perceptions of nature, concepts of the environment .......................................................... 42  
  2.4 Conclusion........................................................................................................................... 48  
Chapter 3 Environmental education: A critical review................................................................. 51  
  3.1 Introduction.......................................................................................................................... 51  
  3.2 Definitions of environmental education and their historical transformation ....................... 53  
  3.3 Environmental education: Theory and practice .................................................................. 69  
  3.4 Theoretical framework for this study................................................................................... 75  
  3.5 Conclusion........................................................................................................................... 90  
Chapter 4 Turning a leaf: Environmental education in Ireland...................................................... 93  
  4.1 Introduction.......................................................................................................................... 93  
  4.2 Mapping Irish environmental attitudes .............................................................................. 94  
  4.3 The development of primary school education in Ireland ............................................... 102  
    4.3.1 Introduction.................................................................................................................. 102  
  4.4 Primary school curricula (1872 – present): Status of environmental education.............. 103
Chapter 4 Environmental education in contemporary Ireland

4.5 Environmental education programmes in contemporary Ireland

4.5.1 Introduction

4.5.2 State-funded environmental education programme

4.5.3 Semi-state environmental education programme

4.5.4 NGO - led environmental education programme

4.6 Conclusion

Chapter 5 Environmental education in practice: Capturing the voices of teachers and learners

5.1 Introduction

5.2 Special branch: Environmental education programmes in Ireland

5.3 An effective environmental education programme?

5.4 Conclusion

Chapter 6 Views, experiences and perceptions of the natural environment: Evidence from empirical data

6.1 Introduction

6.2 Interviewees’ perceptions of the natural environment

6.3 Interviewees’ understanding of human – environment relations

6.4 ‘Digging dirt’: Emotional connections, sense of place and the opportunistic child

6.5 Conclusion

Chapter 7 Disconnect, reconnect or….misunderstood?: Evidence from empirical data

7.1 Introduction

7.2 Disconnect and perceived implications for children

7.3 Environmental education and primary education: Misguided efforts overtime?

7.4 Conclusion

Chapter 8 Discussion of key findings

8.1 Introduction

8.2 Re – visiting the research objectives: what was achieved?

8.3 Conclusion

Chapter 9 Conclusions, areas for future research and policy recommendations

9.1 Introduction

9.2 Summary of main arguments and findings

9.3 Recommendations and areas for future research

Bibliography (or References)
<table>
<thead>
<tr>
<th>Appendix A Interview Questions - EE</th>
<th>256</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appendix B Interview Questions - SS</td>
<td>257</td>
</tr>
<tr>
<td>Appendix C Interview Questions - F</td>
<td>258</td>
</tr>
<tr>
<td>Appendix D Participant Information Sheet</td>
<td>259</td>
</tr>
<tr>
<td>Appendix E Adult Consent Form</td>
<td>263</td>
</tr>
<tr>
<td>Appendix F Child Consent Form</td>
<td>264</td>
</tr>
<tr>
<td>Appendix G Flyer</td>
<td>265</td>
</tr>
<tr>
<td>Appendix H Letter to Environmental Educator</td>
<td>266</td>
</tr>
<tr>
<td>Appendix I Letter to School Staff</td>
<td>267</td>
</tr>
<tr>
<td>Appendix J Family - Pictures</td>
<td>268</td>
</tr>
<tr>
<td>Appendix K School Staff - Pictures</td>
<td>274</td>
</tr>
<tr>
<td>Appendix L Specimen Table</td>
<td>276</td>
</tr>
</tbody>
</table>
List of Figures

Figure 1: Timeline: Environmental education definitions ............................................................. 66
Figure 2: Timeline: Environmental education approaches ............................................................ 72
Figure 3: Components of theoretical framework ........................................................................... 77
Figure 4: Key issues that impact environmental education ............................................................. 122
Figure 5: Factors influencing interviewees' notions of the natural environment ....................... 159
Figure 6: Adult and child participants - perceptions of a disconnection .................................... 191
Figure 7: Interviewed children challenge the disconnection hypothesis .................................... 199
List of Tables

Table 1: Research process.............................................................................................................. 17
Table 2: Overview - semi-structured interviews............................................................................ 18
Table 3: Evaluation of key environmental education definitions .................................................. 65
Table 4: Educational paradigms (adapted from Sauvé, 1996, p. 17) ............................................. 81
Table 5: Concepts of the biophysical environment (adapted from Sauvé, 1996, p. 13) ............... 84
Table 6: Concepts of sustainable development (adapted from Sauvé, 1996, p. 27) .................... 88
Table 7: Ireland's top five environmental issues (European Commission, 2008, p. 2)................. 97
Table 8: Ireland's top five environmental solutions (European Commission, 2008, p. 2).......... 101
Table 9: Timeline of primary school development...................................................................... 104
Table 10: The formalisation of environmental education............................................................ 115
Table 11: Two strands of environmental education..................................................................... 146
Table 12: Emerging concepts of the natural environment from empirical data......................... 174
### Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
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<td>EE</td>
<td>Environmental Education</td>
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<tr>
<td>EEC</td>
<td>European Economic Community</td>
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<td>ESD</td>
<td>Education for Sustainable Development</td>
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<td>EU</td>
<td>European Union</td>
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<td>INTO</td>
<td>Irish National Teachers’ Organisation</td>
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<td>IUCN</td>
<td>International Union for the Conservation of Nature and Natural Resources</td>
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<td>IEEP</td>
<td>International Environmental Education Programme</td>
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<td>NPWS</td>
<td>National Parks and Wildlife Service</td>
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<td>NCCA</td>
<td>National Council for Curriculum Assessment</td>
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<tr>
<td>OECD</td>
<td>Organisation for Economic Co-Operation and Development</td>
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<tr>
<td>SD</td>
<td>Sustainable Development</td>
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<td>SESE</td>
<td>Social Environmental Science Education</td>
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<td>SPHE</td>
<td>Social Personal Health Education</td>
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<td>UN</td>
<td>United Nations</td>
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<td>UNEP</td>
<td>United Nations Environment Programme</td>
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<td>UNESCO</td>
<td>United Nations Educational, Scientific and Cultural Organisation</td>
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<td>WCED</td>
<td>World Commission on Environment and Development</td>
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Chapter 1

Introducing the topic of environmental education

1.1 Introduction

Environmental education is at a crossroads. As global environmental and ecological crises continue, the expectation of environmental education to equip society with the necessary environmental skills and knowledge accompanies the urgency for (environmental) sustainability. The sustainability of the environment and its resources is undoubtedly uncertain, yet environmental education argues that future policy makers and environmentalists lack outdoor experiences which are a priority for the development of necessary skills to prevent further environmental damage. Considering the wide-ranging scope of global environmental destruction and the implications for social, cultural, political and economic development, environmental education carries both high expectations and levels of responsibility. However, there are questions to be asked regarding these expectations as recent criticisms suggest that environmental education has failed to halt environmental degradation (Saylan and Blumstein, 2011). There are real gaps and problems emerging not because all current approaches have failed but because research does not acknowledge that there are different approaches to environmental education and that different people and interested parties view the role and content of environmental education very differently. A truly reflective multi-disciplinary approach to teaching (and indeed learning) about our natural environment is of critical importance at this juncture.

Environmental education argues that children in modern society are (dis)connected from the natural environment. The ‘disconnection hypothesis’ has increased exponentially moving beyond environmental education research to wider sustainability debates and general discourse. In recent decades changes in the physical landscape, including increased (sub)urbanisation, have altered the way in which children develop a sense of
place or attachment with their natural surroundings (Corcoran et al., 2009, p 39). Subsequently, there has been a significant increase in research that examines the role of environmental education in the wider community, the value of nature experiences, and reviewing the social and economic benefits and barriers to outdoor play for children (Jeronen and Kaikkonen, 2002, Ofsted, 2008, eftec, 2011, Van Wieren and Kellert, 2013). A majority of publications begin with the assumption that children are disconnected from the natural environment and promote environmental education within that context. But to what extent does environmental education either reconnect or perhaps disconnect further is overlooked. Though a broad range of environmental education studies exist, the lack of diversification and prevailing quantitative evidence has lead to fragmentation and repetition in the field and the views and opinions of children is largely absent in such debates. Methodological approaches and practices carry a passive view of learners. Some, for example, evaluate an individual programme, pilot/case study or measure a particular outcome that is specified prior to a study. The process of environmental learning and relevancy for students is secondary to defining these educational outcomes from various educational approaches and practices (Rickinson, 2001, p. 216, 217). Considering recent criticisms of environmental education, a critical examination as to what ‘disconnect’ means for children and their experiences of environmental education requires urgent attention.

Debates around (dis)connection run parallel to discourses about the importance of unregulated, unsupervised outdoor play for children in developing their imagination, sense of creativity, and social skills. Qualitative research of children describing how they interact, conceptualise and understand their natural world is currently limited. This is an obvious gap in the research and much more cognisance needs to be taken of children’s actual experiences and from their perspective. Much of the existing literature focuses on how changes in the physical landscape, including (sub)urbanisation has altered the relationship between children and the natural environment. The natural environment has
‘traditionally been a site for play and physical activity’ (Fjortoft, 2004, p. 22). However, it now evokes uncertainty, fear, and concerns as to potential risks, in the minds of parents, prompting them to keep their children within their visual range. A growing fear of litigation within society and the emergence of a ‘blame culture’ arguably contribute to children spending less time outdoors and more time indoors. Furthermore, the influences of technology and media providers now successfully vie for the attention of children (Malone, 2007, Louv, 2005, Scarlett et al, 2005). All of these developments have contributed to disconnecting children from the natural environment and must be a cause of some disquiet to environmental education theory and practice.

There is confusion as to whether different types of environmental education exist and to what extent concepts differ inside or outside formal education. Drawing on personal experience in the field of environmental education in Ireland, this author can reveal that environmental education is taught either as part of the school curriculum or as an outsourced programme which complements or accompanies curricular objectives. Being firmly embedded in the formal education system, environmental education 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 (Play England, 2008, Ofsted, 2008, Natural England, 2010, eftec, 2011). However, a conflict exists as environmental education is understood to contradict the dominant functions of education. Environmental education encourages learners to be active thinkers yet within formal education learners are ‘recipient of other people’s knowledge and thinking’ (Stevenson, 2007, p. 143, 147). This somewhat troublesome relationship causes problems for environmental education as ‘it does not fit neatly into any traditional subject areas’, leaving it vulnerable to marginalisation (Gough and Gough, 2010, p. 339). The purpose of education is one of on-going contested debates.

In contrast, other strands of environmental education focus on developing a sense of place or belonging to the natural environment through firsthand experiences outdoors, with no specific educational outcomes in mind. It can be argued that these two processes are diametrically opposed and conceptual confusion prevails in the environmental education sector which hampers more concerted efforts to address and potentially improve the current low status of environmental education within the wider education system.

Environmental education 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.¹ The majority of publications do not cater for conceptual investigations, with few 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, Rickinson, 2001, p. 275, Van Wieren and Kellert, 2013, p. 262). There are studies that investigate how young people conceptualise the environment (Loughland et al., 2003) or nature (Bonnett, 2007, Schultz, 2001) but there is not a critical examination of the concepts of the natural environment overall that underpin environmental education or the possible implications on how children learn about and perceive the natural world. Debates as to the meaning of such concepts differ across many disciplines and subject areas to include environmental sociology, green philosophy, environmental education, and ecology and those synonymous with environmental concerns and sustainable

development. Considerations in environmental education regarding the definition of the relationship between people and the environment reflect and exemplify this diversity.

While a full discussion of how humans perceive and interpret their relationship with the nonhuman world is beyond the scope of this research, it is nevertheless important to map the debates within environmental education. Questioning what notion of ‘the environment’ is reflected in environmental education is crucial to understanding what type of relationship is promoted between children and the natural environment. 2

The fluidity of concepts of environmental education that filter through publications give little concern to what they mean for those actively involved in teaching and learning of environmental education. There are numerous publications on environmental education which carry little critical examination of the varying nuances these concepts exhibit. Publications frequently associate environmental learning or outdoor learning with active participation and emphasis on those who learn within and outside the school system. Concepts of environmental education or outdoor education tend to focus on instruction and those who teach in the formal school system (Ballantyne et al., 1998, p. 288, Eshach, 2007, p. 187, Beames et al., 2009). The lack of distinction of what underpins environmental education and how this influences a particular educational (or learning) experience for those involved in teaching and learning is a concern.

A self-critical examination of environmental education requires urgent attention in order to distinguish between the different provisions of environmental education that coexist and the manner in which they are disseminated. How is the relationship between

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2 Unless otherwise stated, this research uses the ‘natural environment’ ‘biophysical environment’ or ‘natural world’ as a general term. It proposes to investigate the underlying concepts of the natural environment overall and the relationship with environmental education but does not engage in ongoing wider ‘environmental’ debate. (section 2.3, Chapter Six).
environmental education and environmental attitudes and habits conceptualised in the context of environmental education?

In this thesis the many concepts of environmental education and what these mean in a very practical sense will be examined and analysed to identify major trends and (in)consistencies. How those actively involved in the teaching and learning of environmental education view the role and the content of environmental education are investigated to address the current gaps within research (and practice).

1.2 A case for Ireland

Ireland offers a unique opportunity to critically analyse and investigate environmental education. There is currently a limited amount of published research and information available which examines the status of environmental education and its (in)effectiveness to (re)connect children with the natural environment. The dearth of information on environmental education from Ireland contrasts with the plethora of research projects and publications in other countries. In North America, for example, a significant number of websites, articles, monthly events, and film documentaries explore the relationship between children and the natural world (Children and Nature Network, 2009, Child and Nature Alliance of Canada, 2012, Centre for Ecoliteracy, 2014, Play Again, 2010). The majority of publications deal with the various aspects of children’s contact with the outdoors to enhance their experiences through an environmental education initiative or the promotion of environmental education in school (Francis et al., 2013, White, 2004, Elliot, 1999, Lindemann–Matthies, 2005). This is often accompanied by a variety of new initiatives that emphasise effective communication between individuals, the community, and school environment to promote environmental education efforts overall (Cornell, 1998, Kellert, 2002, Louv, 2005, Sobel, 2008).

In the EU, social research on the effectiveness of environmental education on children’s relationship with the natural environment has significantly increased in recent years. An
emerging argument within research is the links between outdoor environmental education with increased creativity, language development and improved sense of well-being amongst students. Growing evidence also suggests that when outdoor environmental education is adequately planned and delivered it can improve academic standards as the learner shows more motivation in the classroom (Natural England, 2010, 2011, eftec, 2011, English Outdoor Council, 2010). This coincides with the debate around (dis)connection and that children are spending more time indoors, under supervision and engaged in structured activities. As a result there are concerns that children will not only become risk averse but become risk naïve as adults (Brennan, 2010, p. 13, Play England, 2008, p. 103, Gill, 2010, p. 1). Consequently, environmental education practices focus on outdoor hands-on education in particular. Although there is a considerable drive to educate children about the natural environment and to measure environmental attitudes and behaviours (see Chapter Four), social research on environmental education is largely absent in Ireland. Using Ireland as a case study provides the opportunity to critically examine environmental education while also covering new ground in areas of study relating to education, public policy, sociology, environmental sociology, and broader sustainability studies.

There is ample evidence to suggest that Irish people’s attitudes towards the natural environment and sustainability have changed, in particular during the 1990s and 2000s, and that these changes can be linked to the modernisation of Irish society. Irish people have been described as becoming ‘modern’ in their attitudes towards the natural environment and a significant shift in how environmental knowledge is transmitted has accompanied this process (Share et al., 2007). The transition to modernity coincided with major changes in land use patterns from agriculture to an increasing (sub)urbanisation of Irish society in the twentieth century, which in turn has dramatically altered people’s relationship with the natural environment (Corcoran et al., 2009, Department of Children and Youth affairs, 2012a, 2012b). In the past, members of Irish farming communities
frequently passed on knowledge about the land in informal ways. The names of mountains, lakes, bogs and fields had symbolic meanings, for example, geophysical feature or local significance with most children learned about soils through touch and flowers by smell. However, in recent decades radical changes in how children (and adults) view and interact with their environment has been heavily influenced by broader land use changes, including development of the suburban landscape in parts of rural Ireland. Within (sub)urban areas, for example, anti-social behaviour, traffic and noise pollution have heightened parents’ awareness of risk and health and safety issues. A lack of amenities and a preoccupation for the ‘structuration’ or segmentation of space contribute to increased parental supervision of children as well as restricted and controlled freedom of movement (Corcoran et al., 2009, p. 53). This has changed how environmental knowledge is transmitted, observed, and indeed experienced by children.

Informal methods of learning about the natural environment are now being replaced by more formal approaches that occur in a planned, structured, and supervised setting (NPWS, 2010, The Heritage Council, 2012, Burrenbeo Trust, 2013). Across Ireland programmes provide an array of environmental courses, workshops, talks and walks that cater for both the general public, primary, secondary, and third level education as well as special interest groups. Programmes offer a range of games and activities to educate children particularly in primary education (four and twelve years of age) about the natural environment. Within the present Irish primary school curriculum, there are a number of curricular strands that incorporate environmental education and these outsourced programmes aim to complement on-going work in the classroom. Some programmes visit schools at the request of teachers or, alternatively, the class or school can visit a purpose built environmental education centre (NPWS, 2010, The Heritage Council, 2012, Burrenbeo Trust, 2013). The latter seeks to enhance the learning experience providing the opportunity to reinforce what is learnt on returning to the school classroom.
This research argues that children’s relationship with the natural environment has altered and that the implications of a (dis)connection remain under-researched. Moreover the contribution that children can bring to this debate is overlooked. Debates as to the long-term implications of a child’s (dis)connection from the natural world, their emotional wellbeing, as well as social and cognitive development, has grown exponentially in Ireland (Wayman, 2010, 2012, Kirk-Gillham, 2011, O’Malley, 2012a, 2012b, Gaffney 2013). Similar to other countries, in Ireland the majority of publications argue that unlike previous generations, children today have fewer opportunities to access and learn from the natural environment (Thompson, 2008, Woodworth, 2008, O’Malley, 2012a, 2012b), while others focus on the implications and consequences of children’s (dis)connection from the natural environment (Monaghan, 2010, Gaffney, 2013). Despite an increasing number of studies as to merits of being outdoors, in Ireland there is an absence of research that critically investigates how children connect with their natural surroundings, as described by the children themselves. Studies normally discuss children’s relationship from an adult perspective by focusing on generational changes rather than actually testing the assumption that children in Ireland are disconnected, how it is observed and measured (see Chapter Two). The argument that children are disconnected is very much assumed, yet widely accepted as a valid source of ideas for educational institutions, environmental sustainability debate and, importantly, environmental education. As the debate builds momentum, Ireland provides the opportunity to critically examine to what extent children are actually (dis)connected but also to question how they experience the natural environment irrespective of wider land use changes. The views and opinions of children are largely untapped in research and can greatly contribute to the design, content, and successful delivery of environmental education.

In the case of Ireland, there is also a lack of critical analysis as to the (in)effectiveness of environmental education as a sector. The primary school curriculum and some individual programmes do produce evaluations or summary reports. These provide insight into
educational approaches and methodologies but frequently this merely assesses a specific ‘programme’, its content or delivery, and justification for funding (An Tasice, 1987, Motherway, 2003, Burrenbeo Trust, 2013). Currently environmental education programmes are classified under headings such as state-funded, semi-state funded, or non-governmental organisations (NGO). But it is difficult to quantify numbers of programmes or indeed environmental educators as it is a disjointed sector lacking an established national network. Furthermore, this research argues there is little cooperation between self-employed environmental educators and organisations to establish such a network.

In Ireland, ambiguity exists between environmental education and other types of education such as education for sustainable development (ESD) and development education (DE). The Department of Education and Skills (2014) has developed a National Strategy on ESD which seeks to embed ESD in the education system, promote public awareness, capacity building and high standards of environmental management in education institutions. This author made a submission as part of the public consultation process of the National Strategy on Education for Sustainable Development to consider educational practices that are learner relevant and appreciate different understanding of the natural environment as central to long-term sustainability. 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, p. 6).

As future environmentalists and policy-makers the voice of children is central to ongoing debates and discussions. The strategy recommends that the Department of Education and Skills promote the ‘inclusion of children and young people’s voices to a greater extent in the development of new policies and programmes that affect them’ (Department of Education and Skills, 2014, p. 41). Within the context of ESD a consultation process

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3 Author submission, November, 2013 (The Department of Education and Skills, 2013d).
with children and young people is to take place before 2017. Overall the strategy consists of a diverse set of policy areas including environmental education but its position is supportive and lacks distinction within the broader agenda. This raises concerns as to the status of environmental education at government level, particularly at a time of increasing awareness of sustainability issues in everyday discourse. Overall, a gap remains in social scientific research as to the nature and effectiveness of different forms of environmental education which are available in Ireland. Although there is a considered drive to educate children about the natural environment, this research makes a valuable contribution to social research on environmental education and examine its (in)effectiveness, using Ireland as a case study.

1.3 Research aims and objectives

The aim of this research is to theoretically explore and empirically investigate the underpinning concepts of environmental education provisions in Ireland and to what extent they (re)connects children with the natural environment. The thesis begins with the premise that the manner in which children interact, experience, and understand the natural environment has changed dramatically in recent decades. Opportunities for informal ways of learning about the natural world through unstructured, experiential outdoor play for children have significantly diminished. Such educational opportunities are replaced by more formal approaches to environmental education, which is now firmly embedded within the mainstream primary education system. This research provides an in-depth analysis based on critical and reflective interpretations of environmental education and its position within the primary school environment, while also reflecting on the modernisation processes within society that have contributed to and driven the formalisation of environmental education overall. In doing so, it addresses a research gap by mapping the evolution of environmental education in Ireland and the influences of wider societal, historical, and political developments on its (in)effectiveness.
Increasing debates about children’s (dis)connection from the natural environment play a key role in the development of environmental education programmes in primary schools in Ireland. This thesis critically examines the concepts that underpin environmental education programmes with a view to identifying both commonalities and differences. It is essential to understand the educational approaches and dominant practices of programmes in order to ascertain how children learn about, engage with, and experience environmental education. If it is taught in a formal or indoor context it may not promote an empathetic relationship, as advocated by more radical ecocentric approaches to environmental education. An investigation into how the natural environment is portrayed further questions these underlying concepts but also the ability (if any) to shape children’s environmental attitudes and behaviours.

Acknowledging the dearth of qualitative research within the field both nationally and internationally, this research collects and examines qualitative data through semi-structured interviews with environmental educators, primary school staff, parents and their children. Based on an in-depth analysis of primary and secondary sources, this thesis captures the experiences of those actively involved in the teaching and learning and explores dominant arguments within environmental education. What do environmental educators have to say about environmental education? What are the views of school staff and parents concerning environmental education at school? In their own words, how do children experience environmental education? Crucially, what do interviewees say about children’s (dis)connection from the natural environment? How do perceptions compare, or contrast, with accounts given by children? What does this say about the impact or success of environmental education?
Drawing on the analysis of empirical data and a range of secondary sources, this research seeks to:

1. **Examine the development of environmental education in Ireland, and to what extent it is (in)effective in (re)connecting children with the natural environment**

2. **Critically analyse environmental education and its underlying concepts, including concepts of education, of the biophysical environment, and of sustainable development**

3. **Capture the diverse experiences of environmental education practitioners (educators and school staff) and learners (parents, children).**

These research aims and objectives provide guidance throughout this thesis. The following section explains the methods used to address them.

### 1.4 Methodology

Environmental education research is characterised by a variety of methodological approaches and continues to broaden in theoretical and epistemological frameworks. Nevertheless, the majority of work is quantitative and positivist in nature and demonstrates a continued imbalance and fragmentation of approaches within the field (Rickinson, 2001, Loughland *et al.*, 2002). This research covers a middle ground between quantitative and qualitative techniques. This thesis makes a valuable contribution to the field of environmental education and sustainability research through an in-depth investigation of the role of environmental education in shaping Irish people’s environmental attitudes and behaviour. It deploys an innovative multi-method framework which combines qualitative methods of data collection with a secondary analysis of relevant literature, documents, and already existing quantitative data. This particular methodological approach is chosen because it fits the complexity of the research topic and the researcher can access a much broader spectrum of tools for data collection and analysis. It also strengthens the quality of the research by making it comprehensive and
attractive to a diverse audience including practitioners, policy makers, academics, and
students of environmental education.

The investigative and analytical methods focus at a number of levels. Firstly, secondary
data analysis consists of a critical review of international literature on the sociology of
(environmental) education and theories of (environmental) education in cognate
disciplines. Comparative work to establish where and how environmental education fits
in European countries and parts of North America coincides with work on the history of
education in Ireland and the status of environmental education. Historical documents help
to map the transformation of environmental education in Ireland and to show the
significant impact of major historical events, such as Irish Independence and EU
membership, on curriculum development in general, and environmental education in
particular. An in-depth investigation and available information of various environmental
education programmes currently administered in Ireland (state-funded, semi-state funded,
and NGO programmes) pays particular attention to how society-nature interactions are
conveyed through initiatives in the field. The combination of analysis of publicly
accessible information from scientific, research and popular publications, leaflets,
websites, policy reports, curriculum documents, existing quantitative statistics and data
sets identifies trends not only in the development of environmental education but also
environmental attitudes and practices in Ireland.

Secondly, the qualitative data consists of forty-seven semi-structured interviews with
environmental educators (n = 18), school staff (n = 11), and families – parents and their
children – (n = 18) in Ireland. The interviews (n = 47) were semi-structured in approach
to ensure comparability between interviewee groupings but, at the same time, give each
interviewee the opportunity to raise any issues that are particularly relevant to them.
Interviews were voluntary and adult participants were mid-twenty to seventy years of age
while children were aged between four to fourteen years. A parent was always present
during the interview with children and children conversed easily, though some were shy or too young to join the conversation. Therefore, the interviewer made a concerted effort to provide questions that were easily understood and age-specific to engage children and encourage better participation. The author’s experience of working in environmental education gave her the skills and confidence to approach interviewees and to provide a friendly, comfortable, relaxed atmosphere to put the interviewees at ease. In doing so, this opened up greater opportunity for the development of conversations and for building rapport between the interviewer and interviewees.

The empirical part of the thesis is divided into three separate parts. Environmental educators were chosen for their experience, knowledge, and practice in the field of environmental education, which in some cases spans several decades. By accessing existing expert networks that are familiar to the author, the initial list of environmental educators snowballed as recommendations for potential interviewees emerged during the initial interview process. This research provides a critical examination of environmental education focusing on state-funded, semi-state funded, and NGO-led environmental education programmes administered in Ireland. These are representative of educational trends within the majority of programmes and importantly promote hands-on outdoor environmental education which is of particular interest to this research (section 1.3). This study does not intend to evaluate individual programmes but rather investigates environmental education overall from the perspective of all stakeholders. It is important to note, however, that in Ireland there is a particular programme that is well-established in primary schools. The Green Schools (GS) runs throughout the academic year and potentially for several years (Green Schools, 2013). Through an awards scheme, the programme promotes an environmental management plan that consists of a number of themes and steps which must be completed to earn a Green-Flag for the participating school. The author of this research does not explicitly focus on the GS programme but rather environmental educators that are associated with particular environmental
education programmes. Educators are grouped together for the purpose of data analysis. Four of these interviews take place in the participant’s home, seven in their place of work, and seven in a public setting.

Additionally, there were eleven semi-structured interviews 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). A letter of invitation afforded the opportunity for schools to participate in the project, with a total of six schools participating in the research, three urban and three rural. Eight teachers and three principals contributed with face-to-face interviews. One island school, off the west coast of Ireland, was chosen for a comparative analysis to environmental education, and children’s relationship with their natural environment. All interviews with school staff occurred in their place of work.

Finally, 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 participants, an information flyer promoting the project and seeking families to participate was distributed to school staff (see Appendix G). In all, eighteen families took part in semi-structured face-to-face interviews. Sixteen occurred in the family home while two were conducted in a public setting.

Table 1 outlines the research process and timeline of interviews with environmental educators, school staff, and families.
Research Process | Time period
--- | ---
1 | Secondary data analysis | Sept 2009-2013
Continuous collection and analysis of critical approaches to environmental education (Europe, North America), environmental policy, attitudes and behaviour in Ireland and their links with environmental education
Ongoing review of various environmental education initiatives/programmes, scientific research, policy reports, existing statistics and data sets

2 | Semi-structured interviews (47 in total) | Sept 2009-July 2010
Environmental educators (18)
School staff (11) | April-June 2010
Families (18) | May-July 2010

Table 1: Research process

Prior to the collection of qualitative data ethical clearance was required, particularly as the fieldwork involved children. This was subject to an independent review by the NUIG Research Ethics Committee. All interviewees are anonymous and interviews occurred face-to-face. A Dictaphone recorded all interviews which were transcribed verbatim by the author.

Table 2 presents the format and structure of the interviews with each group of interviewees. It shows the key areas of inquiry and questions which were expanded and explained in greater detail thereafter.
<table>
<thead>
<tr>
<th>Interviewees</th>
<th>Subject</th>
<th>Interview questions</th>
</tr>
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| *Environmental educators (18)* | **Childhood** | Contact/connection with natural environment  
Influence of a mentor/other on this relationship/profession  
Environmental education in primary schools |
|               | **Environmental education work** | Description of work, content, design, delivery  
Thoughts/perceptions of environmental education  
Environmental education at primary school |
|               | **Children’s (dis)connection**   | Views regarding a (dis)connection, children’s awareness, knowledge, appreciation of natural world |
| **School staff ⁴ (11)** | **Childhood** | Environmental education at primary school  
Contact/connection with the natural environment |
|               | **Work**                        | Status and regularity of environmental education at school, educational approaches and dominant practices, perceived experience of children |
|               | **Children’s (dis)connection today** | Views regarding a (dis)connection, perceptions of environmental awareness, knowledge, appreciation and contact with the natural environment |
| **Families (18)** | **Children** | Environmental education |
| **Children** | **Parents** | Environmental education at school/outside of school, knowledge, awareness, experiences, relationship with the natural environment |
|               | **Environmental education**      | Views regarding a (dis)connection, opinions of environmental education, perceptions of environmental awareness, appreciation and relationship with the natural environment |

Table 2: Overview - semi-structured interviews

Environmental educators

Environmental education contends that children today are (dis)connected, and questions relating to the childhood of environmental educators sought to ascertain how and in what ways they experienced, interacted, and connected with the natural environment.

Enquiring about such experiences and questions regarding environmental education at

⁴ Eight primary school teachers and three principals participated in face-to-face interviews.
primary school provides a framework to compare and contrast differences (if any) between generations, a unique element of this research.

The questions\(^5\) focused on the structure, content and delivery of environmental education programmes, as described by environmental educators working in the field. This provided insight as to the purpose of environmental education, educational outcomes (if any), and flexibility with regard to its role within formal education. It also illustrated discrepancies or similarities between educational approaches employed by educators, which can influence how and in what way children learn about the natural world.

Questions also focused on the opinions of educators regarding children’s (dis)connection and changing relationship with the natural environment. They examined from the perspective of environmental educators how the influence of wider societal, economic, and political developments can impact on children’s connection and the role of environmental education within that context.

**School staff**

Contributions from school staff can inform the way we understand how environmental education is taught and delivered to children in primary schools in Ireland. Their answers provided a detailed picture of the position of environmental education as a subject area and its dominant practices. Similar to environmental educators, there was an opportunity to investigate generational differences (if any) with children and school staff, who also provide information as to what extent curricular changes influence (positively or negatively) environmental education over time. This provides the opportunity to investigate possible implications of curricular changes on the teaching of environmental education but also the impact of outsourced environmental education programmes. School staff are in a position to evaluate how environmental education and its

\(^5\) See Appendix A for interview questions.
effectiveness on the learner is perceived from the perspective of teachers. This is crucial for a greater understanding of its status within curricula, the significance of the environmental education sector as an educational resource, and the possible (in)effectiveness of environmental education overall in primary education.

Families
Though the same categories of questions applied to the family, interviews were structured in a slightly different manner. As suggested, children today have little connection and limited knowledge of their natural surroundings and the interviews provided the opportunity to investigate whether this is the case for children in Ireland. To what extent are the children disconnected from the natural environment? How do the children themselves describe their time outdoors? Here the inclusion of children provided greater scope to compare and contrast the answers regarding environmental education with their parents (educators and school staff). Moreover, the family interviews provided opportunities to critically analyse environmental education from the perspective of the learner. What programmes, initiatives, curricular areas are mentioned by children and parents, if any? What are the dominant practices within environmental education as interpreted by families? The views of children and of their parents regarding education, environmental education, and discussing the natural environment are an integral part of this study. It helps to address the research aims and objectives regarding environmental education, and whether or not it is relevant to the learner and their relationship with the natural environment.

1.4.1 Data analysis process
There is no commonly accepted way of doing qualitative data analysis or specific formula that transforms qualitative data into relevant findings. However, the nature of the semi-structured interviews gives the opportunity to probe beyond initial answers to make sense of ‘the data and attempt to identify core consistencies and meanings’ (Patton, 2002, p. 432, 453). This thesis engages in relational data analysis consisting of the critical
interpretation of findings from interview transcripts and existing quantitative information such as official documents and statistics and also existing qualitative studies (cf. Bryman, 2008, Patton 2002, May, 1997). This analytical approach is adopted because of its flexibility to integrate with emerging concepts feeding into the development of the theoretical framework and vice versa. This integrative-relational approach is central in this research because it systematically grounds the project’s theoretical framework in empirical data.

Prior to analysis the researcher, after each interview, took time to write up memos which document observations and initial ideas as to the organisation of topics and potential coding of data. As many of the family interviews, for example, occurred in the participant’s home after recording some children gave the researcher a tour of their tree house, den, or fort in the garden. With permission from parents’ the researcher took a number of photographs of outdoor play areas as discussed by children. The images further enhance the author’s understanding of the data and are an important part of recording hypothesises and insights to emerging codes (see Appendix J for photographs).

Exploratory data analysis (Phase 1) begins with transcribing and continuous listening to each interview. Computer software can help with the analysis (Bryman and Burgess, 1994, p. 221). However, in this thesis the use of Microsoft Word was deemed sufficient. It is during this phase that the author also used several colour codes to mark different themes on the printed transcripts. This process took time, discipline, and organisation. Colour-coded illustrations, mind-maps, and brain-storming sessions on paper helped to identify and present findings that emerged from each interview while also keeping in mind commonalities and exceptions across the interview groupings. The memos and photographs were also beneficial to this phase of the analytical process as they re-engaged the author with the experiences felt during the interviews. They were also an essential part of ‘continual internal dialogue’ between the author and the data (Strauss,
1987, p. 110). Overall the careful re-reading of transcripts, a critical examination of the emerging patterns, and the combination of photographs and memos that reminded the author of the context of each interview facilitated an initial classification system and coding scheme which was subsequently refined as the work progressed.

The interpretation of findings (Phase 2) involved going back and forth between interview transcripts to further organise themes and patterns. This part of the process yielded key concepts to make sense of the data and form a basis for drawing conclusions. The author differentiated between the experiences felt and observed when collecting the data and the subsequent interpretation of key findings. In doing so, this author continued to question her own ‘perspectives and understandings to make sense of the evidence’ (Patton, 2002, p. 478). The intent is to investigate not only what the interviewees speak about but also the ‘characteristics of the language as communication with attention to the concept or contextual meaning of the text’ (Hsieh and Shannon, 2005). Asking questions of each interview during the analytical process helps reveal and interpret the meaning of each finding. Patton (2002) frames a number of questions that can be used during this phase to help the analyst. For example, when reading the data ask ‘what does this mean? What does this tell me about the nature of the phenomenon of interest?’ (p. 477). In this research the author also asks how particular findings contrast with other interviewees. Do concepts reflect or contradict topical arguments within environmental education literature?

Giving an equal voice to children and adults (environmental educators, school staff and parents) was also an integral part of the analysis as well as comparative analysis between interview groupings. This is a unique element of this research as it explores and portrays the experiences of all those actively involved in environmental education.
1.5 Thesis roadmap

- Critical analysis of concept of disconnect found in the literature and the implications for environmental education.
- Critical review of environmental education research, definitions, approaches and dominant practices to identify patterns and areas for further strengthening.
- Presents the theoretical framework of this research to examine concepts that underpin environmental education (guide analysis of qualitative data).

Chapter 1: Introduction to environmental education, research concerns and questions, methodology, and structure of thesis.

Chapter 2: Environmental education in Ireland: Environmental attitudes, wider social, political and cultural development and the possible influence on environmental education and its status within primary education.

Chapter 3: Perceptions of the natural environment as expressed by environmental educators, school staff, parents and children. An in-depth understanding is essential for environmental education and its aim to shape people's relationship with the natural world.

Chapter 4: Critical examination of environmental education in Ireland. Educational approaches, practices, key messages and the influence of formal education on its (in)effectiveness – as expressed by interviewees.

Chapter 5: Discussion of main arguments and research findings

Chapter 6: Compares and contrasts the opinions of interviewees and asks if, and to what extent children today are (dis)connected from the natural world and the role of environmental education within that context.

Chapter 7: Conclusions, policy recommendations and contributions to environmental education research.

Chapter 8: Findings Chapters

Chapter 9: Analysis of Qualitative Data

Discussion and interpretation of findings, conclusions and recommendations.
This introductory chapter sought to capture and briefly sketch the on-going debates and issues surrounding environmental education. **Chapter Two** challenges taken-for-granted assumptions within environmental education research that children are disconnected from the natural environment and the implications of such for approaches and practices. The chapter questions dominant assumptions of the disconnection hypothesis asking whether there actually is a disconnection and to what extent children’s experiences contribute to ongoing debates. The majority of methodological tools that measure children’s connection are quantitative in approach and thus limiting an in-depth analysis as to what underpins and shapes a particular connection. It also examines two dominant concepts of the natural environment - ‘environment’ and ‘nature’ - to explore how these differences in perception and interpretation translate into environmental education practices. The chapter presents an integrated approach to the disconnection hypothesis debate bringing forward current models that question existing arguments and mainstream environmental education efforts.

**Chapter Three** analyses the purpose of environmental education and the development of definitions across different strands of environmental education research as well as dominant approaches and practices adopted within this research area. The chapter critiques established educational paradigms that underpin environmental education in attempting to understand how and in what way children experience environmental education. In addition, Chapter Three presents a theoretical framework to guide the analysis of the semi-structured interviews in chapters (environmental educators, school staff, parents and children). The framework incorporates a number of concepts reviewed namely; of education, of the natural environment, and the links to sustainable development which underpin environmental education. This typology provides a comprehensive framework for analytical and self-critical research on environmental education in both theory and its practices.
The critical examination of the environmental education literature in Chapter Two and Three is followed by an in-depth investigation of environmental education in Ireland in Chapter Four, which draws on existing data sets and documentation. This chapter also provides an extensive secondary examination of existing social survey data to assess not only prevailing environmental values but also their (potential) influence on formal education and the position of environmental education within it. Chapter Four also captures the impact (if any) of wider political, cultural, and historical developments in Ireland on the status of environmental education, including its position within curricula. The chapter presents a historical timeline that illustrates and examines the content, educational approaches, and delivery of environmental education throughout primary curricula spanning some 140 years. This is accompanied by a detailed review of environmental education programmes in primary education. These programmes are chosen based on the experience of the author and are representative of current initiatives in Ireland. This combined information identifies the strengths, limitations, and weaknesses of environmental education within the school environment and as an outsourced programme. The chapter provides a detailed examination of the modernisation and formalisation of the environmental education sector in Ireland, and in particular its relationship with formal primary education.

Chapters Five, Six, and Seven form part II of the thesis and present the findings from the analysis of empirical data collected for this research. Chapter Five investigates the educational approaches and dominant practices of environmental education in Ireland, as described by environmental educators, school staff, parents, and their children. It explores perceptions and expectations of environmental education, taking into consideration the diverse views of those teaching and learning in the field. Discovering two distinctive types of environmental education, the chapter questions the implications of particular approaches to children’s experiences principally with regard to the relationship with formal education and ultimately, environmental sustainability.
Chapter Six draws on the theoretical framework outlined in Chapter Two to investigate interviewees’ perceptions of the natural environment. A critical examination of how those actively involved in environmental education, and in particular children, view the natural world is under researched in environmental education literature. Evidence suggests not only patterns, but also conceptual diversity and complexities in how interviewees interpret their natural surroundings. Further examination of what influences these perceptions provides new evidence for environmental education, its relevance to the learner, and also vice versa.

Chapter Seven seeks to understand whether children today are really disconnected from the natural environment and what role (if any) environmental education can play in (re)connecting them. The chapter presents fresh empirical evidence that includes the voices of children. It compares and contrasts the changing nature of childhood in relation to outdoor experiences as described by interviewees. It explores what a connection means for environmental educators, school staff, and parents to reveal further significant insights as to their perceptions of society–environment relations. Overall, Chapter Six represents an effort to provide deeper analysis of the debates surrounding children’s (dis)connection from the natural environment and to what extent this argument is reflected in the data from children.

The second part of the chapter focuses on interviewees’ actual experiences of environmental education at primary level in Ireland. What differences (if any) emerge between adult and child interviewees as to the status of environmental education in the school environment? How has the relationship between environmental education and children’s (dis)connection with the natural environment developed over time? An examination of environmental education in the school environment raises other significant issues such as social, economic, political, cultural, and environmental
developments that occur(ed) in Ireland and globally including modernisation. The investigation provides a clear, yet at times contradictory, picture of the influences of such issues on children’s environmental education both inside and outside of school. The original analysis of data spans several generations and makes a significant contribution to the advancement of environmental education research and practice.

Chapter Eight provides an in-depth analysis and critical discussion of key findings presented in Chapters Four, Five, Six and Seven. It draws together the analysis of all the data in a coherent manner and presents the overall argument as to the (in)effectiveness of environmental education. The main argument is that various environmental, economic and cultural factors impede environmental education’s effectiveness. This is illustrated in particular by the at times contradictory opinions between children and adult interviewees. This argument will partially be made by answering the research questions asked in section 1.3 and also by the contexts of inquiry outlined in section 1.1 and the links to wider developments in Irish society (section 1.2). It assesses the merits and limitations of environmental education and the implications for environmental educators, teachers in primary education and learners. In addition, the author presents her recommendations for the development of environmental education research and contributes to the wider debate on children’s (dis)connection which is grounded in the empirical findings of this thesis.

Chapter Nine concludes this thesis. It presents final comments and observations in relation to the research process and key findings. This research has implications for policy-making in Ireland, and elsewhere including education, environmental and social sustainability. Recommendations for environmental education and ways to address current gaps are presented in a manner that is relevant to policy-makers, (environmental) education organisations, and individual practitioners working in the field. Comments on gaps in the work undertaken and recommendations for further studies and research agendas in these areas is also be presented.
Chapter 2  
Bridging a gap: Environmental education and the (dis)connection hypothesis

2.1 Introduction

Environmental education research has gained considerable momentum in recent decades partly because academics, policy makers and the public have grown increasingly aware of the environmental crises but also the need to equip society with the necessary environmental skills and knowledge to prevent further environmental damage. Increasingly, research focuses on children, the future policy makers and environmentalists, and their (lack of) connection with the natural environment which coincides with the urgency for environmental sustainability. The majority of publications assume that children in many modern societies are increasingly disconnected from the natural environment. Yet a critical examination of whether there actually is a disconnection, how children experience and express their connection with the natural environment (or lack thereof) and what these experiences mean for environmental education is largely absent. Social research on environmental education is minimal, in particular a critical examination of environmental education and the connection it seeks to achieve between children and the natural environment.

Rather than simply reviewing existing literature on environmental education per se, this chapter offers a timely critical investigation of dominant arguments surrounding the disconnection hypothesis within the field of environmental education. Considering the outcome of environmental education carries high expectations regarding environmental sustainability it is crucial to question the disconnection hypothesis and influence on environmental education efforts. This chapter challenges taken-for-granted assumptions within environmental education research that children are disconnected from the natural environment and the implications of such for approaches and practices. Section 2.2
critically examines of the disconnection hypothesis to better understand the ideas and evidence that underpins these debates within literature. The concept of a connection with the natural environment is complex across a number of disciplines including environmental behaviours, child development and environmental sociology. Thorough investigations of key publications in environmental education research reveal significant repetition regarding symptoms of a disconnect that are closely linked to modernisation, unfettered development and decreased access to the natural environment. Literature provides valuable insights as to the development of tools to measure a connection. Though insightful at times, significant gaps remain in research, particularly in relation to more qualitative methods that prioritise the voices of children. Environmental education aims to educate and shape teachers’ and learners’ environmental attitudes and behaviours, yet Section 2.3 finds that research consistently overlooks a critical examination of concepts of the natural environment that underpin these efforts. Perceptions of key concepts such as ‘the environment’ and ‘nature’ are under-researched and more often are taken for granted within literature. Again, a knowledge gap clearly exists in this context, with limited qualitative data available to demonstrate how adults and children interpret these concepts. Section 2.4 provides a detailed summary and conclusions of the chapter. It reveals how key concepts of a disconnection tend to link educational efforts with emotional or cognitive approaches. At the same time, this research critiques the limited focus of the disconnection hypothesis overall and its connection with formal education. The concluding part of this section provides an integrated approach as to children’s experiences and the implications for the disconnection hypothesis which brings forward current models that question dominant arguments and mainstream environmental education efforts.

2.2 Challenging the assumptions of a disconnection hypothesis

The ‘disconnection hypothesis’ describes the changed relationship between children and the natural environment arising from societal transformations such as increasing modernisation and urbanisation. Claims regarding a disconnection of children (and
adults) from their natural environment frequently spread beyond environmental education research to wider sustainability debates and general discourse. A key assumption that underpins this ‘disconnection hypothesis’ attributes changes in the way in which children develop a sense of place or attachment with their natural surroundings to the rapid expansion of (sub)urbanisation and related changes in the physical landscape (Corcoran et al., 2009, p 39). There are concerns as to the effectiveness of environmental education to reconnect children with the natural environment considering the ‘explosion’ of research ‘may not necessarily reflect children’s lived experiences in nature as they represent them’ (Linzmayer and Halpenny, 2013, p. 311).

The majority of publications argue that changes in children’s relationship can be linked to the modernisation process. Unlike previous generations, children today spend more time indoors, immersed in structured activities and under adult supervision which presents fewer opportunities to explore and learn from the natural environment (White, 2004, Burdette and Whitaker, 2005, The Heritage Council, 2010, Irish Wildlife Trust, 2011, Francis et al., 2013). Researchers and commentators in highly urbanised societies are more likely to raise this threat of disconnection with few variations between countries, Europe, Australia and North America, regarding how ‘alarmed’ people are about the apparent disconnect (RSPB, 2013, Malone, 2007, White, 2004). Anti-social behaviour, traffic and noise pollution in growing (sub)urban areas have heightened parents’ awareness of risk and health and safety issues. A lack of amenities and a preoccupation for the ‘structuration’ or segmentation of space contribute to increased parental supervision of children as well as restricted and controlled freedom of movement (Corcoran et al., 2009, p. 53). Differences between urban and rural areas are subtle as inadequate infrastructure such as ‘narrow lanes, poor road crossings’ can also impede children’s access to their local natural surroundings (National Trust, 2012, p. 17). This suggests that the disconnection hypothesis is ‘probably felt across many different parts of society’ as environmental education seeks to reverse this trend (ibid, p. 17).
A concern regarding children’s (dis)connection and the implications for environmental preservation goes beyond environmental education to disciplines that include child development, child psychology and sustainability development debates (Kaplan, 1995, Faber Taylor and Kuo, 2006, Hume and Barry, 2014). Unregulated play outdoors is considered as integral in developing a connection but also expanding children’s imagination, sense of creativity, vocabulary and language development (Wenner, 2009, p. 4). This is important for children’s social development as ‘a rich exposure to social play experiences [a child] is more likely to become an adult who can manage unpredictable social situations’ (Pellis, 2009 cited in Wenner, 2009, p. 4). When describing barriers to outdoor play authors frequently refer to children’s behaviours regarding the internet and increased use of digital technology. Technology is described as a mediated sedentary experience that replaces the positive effects of physical and imaginative play outdoors (White, 2004, Louv, 2005). This research acknowledges the increase in recent decades of technology as a form of play that occupies children’s free time. Recent studies show that school aged children from the United States, Japan and Europe all play electronic games on both home computers and portable computers with approximately ninety per cent of Finnish children engaged regularly in some form of electronic play (Scarlett et al., 2005, p.116). It is interesting that technology is assumed to accelerate a disconnection between children and the natural environment. For children technology is also an educational tool and resource of environmental information. Greater understanding and consideration as to the uses of technology by children requires attention because of the significant role it plays in children’s everyday lives. It is crucial to question to what extent children are firstly disconnected before criticizing developments in modern society such as technology as disconnecting children further.

The majority of publications refer to the biological, emotional and spiritual dimensions when trying to capture changes in children’s connection with the natural world in modern, developed societies, and their potential impact on society - environment
relations more generally. Louv (2005) who coined the phrase ‘Nature-Deficit Disorder’ to describe the ‘human costs of alienation from nature’, assumes a disconnection describing it as diminished use of the senses, attention difficulties, and higher rates of physical and emotional illnesses (p. 34). He argues that being outdoors is essential for emotional, physical and mental wellbeing promoting a nature – reunion between children and the natural world. The suggestion that without direct experiences in the natural environment children’s ‘senses narrow, physiologically and psychologically and reduces the richness of human experience’ is emotive but does not question children’s capacity to connect irrespective of social, cultural and physical barriers (ibid, p. 34). He acknowledges a dearth in research that critically examines the impact of outdoor experiences for children’s health and development and that more data and analysis is necessary, but argues that ‘intuition commonly holds that nature is good for children’ (Louv, 2005, p. 198, Faber Taylor and Kuo, 2006, p. 136). This again gives little consideration to children’s own experiences or whether this type of connection remains or alters depending on broader socio-cultural dimensions.

Current research of the disconnection hypothesis is strongly informed that a genetic bond exists between humans and the natural world. However, different authors may place greater emphasis on one particular biological, spiritual or emotional dimension. World-renowned sociobiologist 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, p. 1). He later lists the possible emotions on encountering natural things as ‘attraction to aversion, from awe to indifference, [and] from peacefulness to fear-driven anxiety’ (Wilson, 1993, p. 31 cited in Verbeek and Frans, 2002, p. 1). Commenting on Wilson’s biophilia hypothesis, Barry (2007) states that:
the biophilia hypothesis is a potentially important argument in the politics of nature conservation and protection of biodiversity, in linking human emotional and psychological health and well-being to the existence and expertise of other non-human living creatures

(p. 278)

As regards the issue of people’s connections with the natural environment, those who endorse the biophilia hypothesis argue that in the past humans experienced an intimate connection and relationship with the natural world but that modernisation has broken this link (Wilson, 1994 cited in Orr, 2004, p. 46). Feehan (2003) shares similar views to Wilson, stating that the human species originates from Africa and that a strong physical and psychological connection to the wild, open spaces of landscapes is ‘quite literally [...] what we were made for’ (p. 512). He argues that humans are genetically predisposed to engage with the natural environment in a certain way. This suggests that given the opportunity to access, interact with or observe the outdoors people instinctively feel an emotional and psychological bond. This research acknowledges the importance of this argument for environmental conservation and wider sustainability debates. However, the hypothesis assumes a disconnection exists based on a particular interpretation of what a connection ought to be. The scientific perspective does not question to what extent people are disconnected and it 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, p. 20).

Currently there is little space available for intervention or questioning how people learn about the natural environment through socialisation while research is preoccupied with the genetic perspective only. A preoccupation with socio-biological and evolutionary explanations as to children’s ‘need’ for the natural environment are not useful in environmental education. If our connection with the natural environment is innate, for example, what difference (if any) can environmental education actually make? Some
authors stress the importance of environmental sensitivity as an important variable in the
development of environmental ethics and prevention of further degradation. This
coincides with research examining children’s concerns for the natural environment, for
example, plants and animals (Bögeholz, 2006, Chawla, 1998a, Faber Taylor and Kuo,
and the implications of science and technology as a cause and solution to environmental
problems (Kim, 2011). Environmental education seeks to re-establish an empathetic
bond which it argues is fundamental in the development of sustainable environmental
behaviours. However, this argument continues to identify a connection with an innate
predisposition of individuals. This thesis argues that a cultural idea of a connection has to
be viewed and discussed beyond a static narrative and an emotive tone. People learn
about the natural environment through the socialisation process within their cultural
framework (Corcoran et al., 2009). The pre-determined concept of a disconnection as
outlined in the majority of publications does not take into consideration more cultural
understandings of how a connection could be (re)established through society and culture.

The argument that culture and society play a key role in shaping peoples relationship with
the natural world is not new. Social sciences take the position cultures define our
positions towards the natural world. American anthropologist Geertz (1966), for
example, states that ‘there is no such thing as a human nature independent of culture’
rather both are intertwined (p. 7). Children also learn and develop their attitudes toward
the natural environment through socialisation processes. Until recently however,
traditional views of the socialisation process viewed children as playing a passive role
within the context of their families and communities (Corcoran et al., 2009). The
disconnection hypothesis overlooks children as active agents in their environmental
learning in local environments. The view that children are passive recipients of
socialisation processes is criticised in environmental education yet research continues to
develop pedagogical approaches without understanding children’s experiences (Nagel,
Recent studies find that children are in fact active agents in ‘creating their own cultures and life world’ (Corcoran et al., 2009, p. 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, p. 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. But it also provides a context to question to what extent a disconnection exists overall.

What underpins a disconnection and perceptions of the natural environment plays a significant role in learner relevancy and the effectiveness of environmental education. Calls for closer emotional and spiritual ties between humans and their natural environment frequently emerge as part of wider environmental sustainability debates, thereby offering an alternative to ‘the sociobiological biophilia hypothesis’. The purpose of environmental education, in addition to producing a motivated and knowledgeable citizenry to solve environmental problems, is to develop a clear understanding that humans and natural environment are intertwined (Hume and Barry, 2014). It promotes outdoors experiences, for example, to reconnect children with the natural environment and promote their social, emotional, cognitive and physical development. This research argues that a shift in emphasis from a genetic narrative to socio-cultural perspective is crucial considering recent criticisms as to the learner relevancy of current environmental education efforts. White (2004), for example, argues that environmental education practices overlook an intimate connection by teaching instead about abstract global issues associated with environmental sustainability that are beyond children’s cognitive capabilities (p. 3). This can lead to a sense of helplessness and to avoidance of solving such issues, and overlooks the importance of environmental education to investigate the capacity of children to adapt and overcome barriers associated with the modernisation process (Sobel, 2008, 1996, p. 5, White, 2004, p.3). The emphasis on facts, knowledge
and responsibility rather than empathy can lead to a sense of powerlessness and ecophobia or biophobia—a fear and disassociation from solving environmental problems (Sobel, 2008). This suggests that efforts underpinned by socio-biological evaluations are not entirely reflective of children’s learning processes or their role as social agents in their environmental learning. Instead, environmental education transforms identifying with global environmental sustainability issues and desired educational outcomes.

This raises interesting questions as to the purpose of environmental education and its links with the disconnection hypothesis. Does environmental education disconnect children further from the natural environment? The assumption that children are disconnected means that environmental education seeks to (re)create a particular socio-biological bond rather than question to what extent the connection is in fact obsolete. However, efforts are emerging which are supported by a growing body of evidence that links outdoor education, as part of formal education, with improved academic performance, social skills and cognitive development (White, 2004, Natural England, 2010, 2011, etftec, 2011). Place-based education, place-based learning, nature play/natural play, and free play, for example, focus on experiential learning while also emphasising cognitive and attitudinal development through outdoor play (White, 2004, Sobel 2008, Francis et al., 2013, Play England, 2007). Place-based education, in particular, seeks to inform educators and communities as to how children experience and interact with their natural environment (Sobel, 2008). A series of principles including adventure, fantasy and imagination, animal allies, maps and paths, special places, small worlds, hunting and gathering6 are employed in order that children can learn from their local natural environment (ibid., p. 19-57). There is ample evidence that emotional connections between children and the natural environment exist and that this can inform many

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6 Adventure (activities that are physically challenging), fantasy and imagination (drama, puppets, and stories) animal allies (empathy for animals), maps and paths (sense of place in local environment), special places (forts, dens, and huts), small worlds (conceptualising abstract ideas), hunting and gathering (treasure hunts).
environmental education practices (Chawla, 1988b, Kahn and Kellert, 2002, Lindemann-Matthies, 2005). Activities such as ‘adopting a tree’, (a child will have to look after his/her tree) or creating a ‘worm bin’ or a children's garden, catching and releasing insects give children a sense of responsibility for the environment (Bohling-Philippi, 2006). If adults bring awareness to children's nurturing behaviour, it is argued that children learn to see themselves as nurturers, and develop environmentally friendly practices. This suggests environmental education is to a degree incorporating children’s immediate natural surroundings in their environmental learning. However, the plethora of initiatives overlap in regard to pedagogical approaches which do not critically assess their learner relevancy. Also the integration of the educational paradigms that underpin efforts (holistic) is problematic in formal education with greater emphasis on educational outcomes rather than processes (discussed further in Chapter Three).

A preoccupation with terminology and prevailing adult perspectives however, reveals that a gap remains in social research on environmental education as regards the voices of children. What is the role, for example, of peer interaction or the influences of parents on the development of a certain relationship with the natural world? This thesis critically analyses collected empirical data to determine what extent wider social, cultural factors influence childrens perceived disconnection in Ireland. However, it is firstly crucial to examine how a connection is measured within current research and the implications of such for the ongoing disconnection debate.

2.2.1 Measuring children’s connection: Some methodological considerations

The majority of studies measure childrens (dis)connection through quantitative methods that are predesigned with a specific educational outcome in mind. Publications analyse different programmes, formats, ideologies, frameworks, and practices (Hungerford et al., 1990, Sobel, 2008, Kaplan, 1995, Ballantyne et al., 1998, Tal, 2004, Scott and Oulton, 1999, Loughland et al., 2002, Drissner et al., 2014). Others provide information regarding children’s knowledge and attitudes about environmental problems (Strife,
2013) or tool to measure empathy and environmental concern (Schultz, 2000). The majority of research continues to focus on formal education as the primary avenue for dissemination (Play England, 2008, Ofsted, 2008, Natural England, 2010, eftec, 2011). Rickinson (2001) finds that environmental education literature is often more descriptive and ‘tentatively expressed, reflecting the phenomenological and exploratory nature of the work’ (p. 224). He argues that environmental education research should reflect more on how interpretations are shaped and include how children socially construct notions of the environment and/or nature. In order to gauge any ‘meaningful understandings’, environmental education research must move away from attitudinal surveys and quantitative methods (Rickinson 2001, p. 224). It is therefore crucial that research examines environmental learning, from the perspective of the learner which requires ‘creative thinking’ in research methodologies, synthesis and utilisation (Rickinson and Lundholm, 2008, p. 351, 352).

The measurement of a connection between humans and the natural environment by a scale or index is gaining momentum across disciplines such as, social issues, environmental psychology and environmental behaviours. This suggests a growing interest in children’s relationship with the natural environment and the subsequent links to environmental sustainability. The new environmental paradigm (NEP), for example, comprises of fifteen statements that aim to measure the ‘primitive beliefs about the nature of the earth and humanity’s relationship with it’ (Dunlap et al., 2000, p. 427). The scale measures people’s value systems which, it is thought, impact on attitudes and concerns regarding environmental issues. The NEP measures cognitive attitudes only with more recent authors developing or introducing new measures that assess cognitive but also affective and experiential dimensions reflecting interconnectedness and a sense of oneness with the natural environment. These research tools, for example, the inclusion of nature with self (INS), the connectedness to nature scale (CNS), the nature relatedness scale (NR) and the connection to nature index (CNI) highlight the frequency of the
measurement tool but for environmental education they provide little evidence as to children’s experiences of the natural environment or processes of environmental learning (Schultz, 2001, Mayer and Frantz, 2004, Nisbet et al., 2009, Cheng et al., 2012). The literature is more exploratory and focuses on testing a measurement scale or an individual’s level of connectedness before or after study. This methodological approach can provide (environmental) information but not necessarily how people emotionally, physically or intellectually connect when outdoors.

A recent study on connecting children with nature in the UK finds that children living in urban areas are statistically more connected with the natural environment than those in rural areas (RSPB, 2013). The study’s measurement with nature scale includes, enjoyment of nature, having empathy for creatures, a sense of oneness and a sense of responsibility for the natural environment7 (ibid). This finding raises methodological questions of the index, for example, do children in urban areas receive formal environmental education and therefore are more ‘connected’? Do urban children have better access to environmental information? Or perhaps is their connection qualitatively different from that of rural children? The baseline study is a scientific approach to track children’s connection to nature. It acknowledges the need for future research to include differences (if any) between children’s levels and to question the role of broader socioeconomic factors that impact children’s connections. This shows the limitations of current models to measure a connection and the need for a more integrated methodological approach.

In Ireland, a recent quantitative study identifies a number of factors that influence outdoor activities adults did as children in comparison to their own children today. The study finds that unlike previous generations there is a reduction in children playing in fields (23%) and woods (19%) and an increase in numbers playing in outdoor

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7 Adapted CNI (Cheng et al., 2012).
playgrounds (18%) and immersed in indoor activity centre (41%) (Heritage Council, 2010). This supports the hypothesis that children’s relationship has altered but for environmental education it is crucial to move beyond statistical analysis and question the relevancy of these exploratory studies for children. There is little awareness or knowledge as to how children construct their view of the natural world which can be researched by using qualitative research designs. This research argues for this gap to be addressed in order to contextualise and develop the data emerging from Ireland and internationally.

One particular study\(^8\) however, does assess student’s sense of connectedness and the differences (if any) from taking part in an environmental education programme. The four day residential study provides information as to how environmental education can enhance children’s connectedness with the natural environment by way of programme length, frequency and importance of positive experiences outdoors (Liefländer et al., 2012, p. 12). To promote ‘greater connectedness’ it recommends environmental education engages children in both informal, affective experiences outdoors as well as formal approaches that advocate cognitive environmental knowledge (ibid, p. 11). This suggests that educational efforts employ holistic and rational approaches in order to develop an emotional connection and pro-environmental behaviours. Interestingly, this does not take into consideration children’s connection(s) (observations, views, beliefs and opinions) prior to the study but rather the outcome of a programme. Similar to the majority of research methods, the findings and recommendations tend to promote a particular environmental education initiative that is designed and implemented from an adults perspective.

On the other hand, Nagel (2004) argues that greater acknowledgement of children’s experiences is needed for environmental education and the development of its

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\(^8\) Adapted INS scale (Schultz, 2001).
pedagogical approaches and practices. The qualitative study explores how children conceptualise environmental education so as to inform future approaches and environmental educational initiatives. It focuses on gaps within research and developed three questions through which to examine the collected data: 1) does environmental education exist in the lives of children, 2) what messages are students getting, and 3) what is the importance of what students had to say (ibid, p. 121-124). Arguing that the appreciation of students’ experiences provides opportunities to ‘strengthen the bridge between reality of environmental education and aspects of environmental education pedagogy, curriculum and research’, Nagel finds that students felt environmental education is important, that it must be active and hands-on in approach and should occur outdoors (p. 124, 126). For those involved in research or the teaching of environmental education, this is significant as it suggests students can express their ideas for and concepts of environmental education. However, it is crucial to go one step further and critically examine to what extent environmental education shapes these perceptions of the natural environment or if it simply enhances an already established connection that develops outside of a formal educational environment.

Overall, methodological approaches are not sufficiently discussed in environmental education research and practice. Recognising the significance of children’s cognitive processes and opinions of how they perceive the concepts needs to be a main priority. It is important to involve young people in the research by focusing on research with children (as a distinction from research on children). Considering the various environmental issues facing the next generation, an improved understanding of learner processes and relevancy in environmental education is crucial in order to gain the experience and knowledge to become the decision-makers of the future (Rickinson and Lundholm, 2008, p. 351). This thesis makes a valuable contribution as the views and opinions of children are central to understanding how the natural environment is
portrayed in environmental education and to what extent it shape environmental attitudes and behaviours.

2.3 Perceptions of nature, concepts of the environment

While a revaluation of the disconnection hypothesis and methodological approaches within the environmental education sector is vital, a comprehensive and critical engagement with environmental education must go one step further. When discussing environmental education it is necessary to critically examine not only the concepts of education that underpin it but also its concepts of the natural environment. Terms such as nature, environment, natural surroundings and natural environment are frequently used without clearly defining what they mean. In addition, they are often used interchangeably, thereby glossing over significant differences in their meaning and their connections with environmental education.

The way in which environmental education understands the natural environment is crucial when considering those involved in teaching and learning. By understanding the perspective environmental education adopts, it is possible to shed light on what the field actually represents. Society is influenced by the natural environment and dependant on its natural processes. At the same time, processes within society such as modernisation and industrialisation influence how the biophysical environment is (not) cared for, protected and frequently exploited. Dunlap (2002) states that western cultural traditions carry a strong anthropocentric viewpoint whereby humans have a ‘tendency to treat nature as existing primarily for human use’ which is a problem of socialisation and cultural attitudes (p. 331). This has also influenced the realm of mainstream education, which in many countries continues to promote the exploitation of natural resources, albeit not always explicitly.

Interestingly, many authors in the field of environmental education research do not explicitly distinguish between environment and nature per se, but use them
interchangeably when discussing society-environment relations (Loughland et al., 2003, Bonnett, 2007, RSPB, 2013). That said, many interesting debates regarding these two concepts are found in disciplinary fields not directly focused on the topic of education, most notably environmental sociology. Buttel et al. (2002) remark that the ‘environment’ is as much about social relations as it is the biophysical environment. They state:

That ‘the environment’ is as [sic] or more socially salient with respect to beliefs, ideologies, discourses and ‘social constructions’ as it is with respect to material - physical constraints and limits

(p. 17)

In other words, the limits of the biophysical environment are profoundly influenced by human activities. Seippel (2002) notes that as society becomes modern, it has ‘a potential for environmental destruction inconceivable a few generations ago’ (p. 197). Modernisation and the industrialisation process have contributed greatly to environmental damage. However, Seippel (2002) maintains there is an opportunity to highlight such issues, and plan and develop solutions. Environmental degradation including loss of biodiversity, habitats and ecosystems are widely publicised within everyday discourse and also the media (Blewitt, 2011). Buttel et al. (2002) also remark on elements of modernisation, capitalist society and the effects on the biophysical environment, stating that:

[...] modernisation’ (the advance of scientific knowledge, the division of labour, ‘globalisation’ and new patterns of technological change in industry and in consumption), rather than being the key ‘driver’ of environmental degradation, may be among the more potent solutions to environmental problems

(p. 17)

Within social theory, Barry (2007) discusses the concepts of ‘the environment’ and ‘nature’. A concept of the environment is complex as it is without a universal definition.
It is often understood as the external surroundings of human social relations, for example, woodlands, rivers, lakes and mountains or the nonhuman environment (p. 13-14). However, it is not necessarily a passive background but a relational concept that can also be defined by who or what exists within a particular environment, a species such as humans, a culture, a place or the non-natural world (Barry, 2007, p. 13). Nature, on the other hand, is ‘perhaps the most complex word in the language’ because it can refer to both the environment and nature, human and nonhuman world (Williams, 1988, p. 221 cited in Barry, 2007, p. 14). It can be an entity that is external, internal or intrinsically bound to society (ibid, p. 12). Adams (1996) explains that the term ‘nature’ often conjures up thoughts and images of mountains, lakes, meadows, wild animals and birds all of which are aesthetically pleasing. Images such as these often connect with notions of untamed wilderness, something that is untouched by humans. Many relate nature, natural and/or wilderness to something separate from human activity or a space left in its natural physical, biological or ecological state.

While it is clear from the material presented above that concepts of ‘the environment’ and ‘nature’ are inherently complex and deserve attention, a widespread belief seems to exist within much (if not all) environmental education research and practice that these are common sense/everyday terms that can be taken for granted. Publications often examine children’s ‘nature’ knowledge or experiences in the ‘environment’ for a particular study, education programme or initiative with formal education (Kellert, 2002, Bögeholz, 2006, Lindemann-Matthies, 2005, Malone, 2007, Children and Nature Network, 2009). Children have the cognitive capabilities to analyse and form opinions of their natural environment, which is of great significance to environmental education research and practice. However, there is currently a vast gap in environmental education literature as to how children develop their ideas of the environment or nature. That said, it was possible to identify a small number of studies that focus on children’s capacities.
Bonnett and Williams (1998) used group interviews with thirty-six children to record their views of ‘the environment’ and ‘nature’. Their results revealed a wide range of perspectives and ideas among the children. The environment, for example, often infers a global term such as ‘the world’, ‘the earth’ and ‘the universe’ (p. 165). One child refers to the environment as a home for humans, animals, birds and trees. Another child distinguishes between a city environment (pollution) and a countryside environment (clean and pretty), alluding to a conscious distinction between a built and natural environment. A third child (and to a lesser extent one other) interpret the environment as a problem which needs to be managed. Another child identifies the environment as a problem to solve referring to the recycling of waste, ‘the environment is all about recycling and picking your rubbish up’ (ibid). The authors draw attention to the sense of individual responsibility or obligation to solve environmental problems which arises from some of these views, as opposed to the collective participation of society as a whole (ibid, p. 165, 170). One child reveals this sense of responsibility, referring to the environment as something to take care of, ‘cos if we didn’t take care of it […] trees could die and flowers and wildlife’ (Girl cited in Bonnett and Williams, 1998, p. 165).

Bonnett and Williams’ (1998) research clearly illustrates children’s awareness and ability to put forward similar perceptions to those of adults. Like adults they view the environment as physical, nonhuman world that provides resources for human society but that also requires protection from overexploitation and pollution. On the other hand, those interviewed perceived nature mostly as ‘living things’. While some children mention that people are part of nature, others feel people are separate to plants and animals. People associate nature for recreation, freedom or suitability for playing games yet it can also be seen as a place of danger (unfamiliar places, thoughts of ‘being robbed’) (p. 165). The former is of interest as it not only refers to the best trees to climb but also to an underlying respect by taking care of and not damaging a particular play area. Children distinguish between notions of naturalness, a natural state including ‘uncultivated places’.
Land that is worked is deemed natural but land within a city or town context is often ‘not nature’ (p. 163, 164). Their understandings are similar to those of adults, suggesting that children’s ability to identify and articulate their relationship with the natural environment strongly reflect their socialisation. However, there is an observable lack of regard for qualitatively different understandings of ‘the environment’. Children may not, for example, have experienced firsthand what they discuss rather copy what they hear or see.

Clearly, children express strong feelings and opinions towards the environment and nature. Again, qualitative evidence provided by Bonnett and Williams reveals that children’s understandings are diverse and at times diametrically opposed. Many, for example, show concern towards solving environmental problems but ‘rate distant global problems as more serious than local ones’, with little connection made between local action and global effects (Bonnett and Williams, 1998, p. 160). They also find that environmental problems can leave children feeling overwhelmed because interpretations tend to be ‘emotionally charged and holistic’, with many not fully understanding interconnectedness or the different strands within the biophysical environment (ibid, p. 170). The study highlights that some feel powerless to fully engage in environmental problems which can diminish a sustained interest to bring together all sides of the argument to solve environmental issues. Interestingly, environmental conservation issues in the media can also prompt such notions of helplessness and avoidance (Blewitt, 2011, p. 720). Overall Bonnett and Williams advocate further research into children’s perceptions of the natural environment, however, the study does not clearly identify how and in what way their findings can benefit environmental education practices.

Expanding Bonnett and William’s argument, recent studies reveal that conceptual confusion exists as to how young people conceptualise their role, sense of belonging and responsibility for ‘the environment’ (Loughland et al., 2002, 2003). The environment associates with a place or ‘something out there’ which can include living things such as plants, animals but also people (Loughland et al., 2003, p. 14). Payne (1998a) argues that
children are more likely to align a concept of the environment with ‘human made objects’ rather than a concept of nature (Rickinson, 2001, p. 277). The conceptual diversity shows that young people can and do have an understanding of the environment and that environmental education programmes ought to help students expand these views (Loughland et al., 2002, p. 196). It is also important to move beyond descriptive writing and instead critically analyse how children’s views of the natural world are shaped within their cultural framework (Rickinson, 2001, p. 224).

Bonnett and Williams’ (1998) study is particularly important as it shows variation and conceptual diversity with regards to concepts of the environment and nature. There is a dearth of research that critically analyses both concepts and therefore of particular interest to this research. It identifies the ways in which children conceptualise dominant concepts of the natural environment, which is crucial for effective environmental education approaches and practices. It is uncertain, however, as to what extent environmental education is effective in shaping these ideas and thought processes. Some argue for a greater understanding of learners’ complex interpretations of the environment and nature for the development of environmental education overall (Rickinson, 2001, p. 224, Bonnett, 2007, p. 2). However, much existing research fails to focus on the perspective of the student and their environmental perceptions and educational experiences (Loughland et al., 2002, Rickinson, 2001, p. 208, 216, 217, 306). All in all, both teachers and learners in environmental education often use the terms ‘environment’ and ‘nature’ interchangeably, with little or no critical examination of their respective meanings (Rickinson, 2001, p. 223, 224).

An examination of concepts of ‘the environment’ and ‘nature’ find nuances and contradictions in how adults and children perceive their natural surroundings. Publications pay little heed to the understandings of the learner or how insights would contribute to a more progressive approach within environmental education and the
influence of technology, suburban barriers and health and safety issues which are now part of children’s environment. Overall the lack of research on the disconnection hypothesis and children’s perspectives is surprising and requires urgent attention.

2.4 Conclusion

This chapter critically examines dominant themes that emerge in discussions of children’s (dis)connection from the natural environment and the possible implications for environmental education. An extensive examination of the disconnection hypothesis finds a dominant socio-biological perspective that argues an innate bond exists between humans and the natural world. As societies become modern this innate connection or often termed the ‘biophilia hypothesis’ has diminished. This chapter finds that the majority of literature overlooks the influences of social and cultural factors in shaping people’s relationship with the natural world overtime. Instead arguments for the hypothesis refer to the biological, emotional and spiritual dimensions in order to capture changes in children’s connection with the natural world in modern, developed societies, and their potential impact on society–environment relations. For environmental education the perspective is limiting primarily as it seeks to (re)create a particular type of connection instead of questioning to what extent it has decreased. This chapter identifies a research ‘gap’ as many publications give little consideration to children’s own experiences and whether this type of connection remains or alters depending on broader socio-cultural dimensions. It argues that children are active agents within their cultural framework and are not passive recipients in their environmental learning.

The measurement of a connection between humans and the natural environment are more often quantitative in approach, predesigned and with a specific educational outcome in mind. Studies provide information on children’s environmental knowledge, attitudes and concerns but are often descriptive with few considering how children emotionally, physically or intellectually connect with the outdoors. The absence of qualitative studies is surprising considering recent criticisms of the ability of environmental education to
shape environmental behaviours (cf. Saylan and Blumstein, 2011). Greater diversity in methodological approaches to include qualitative methods that prioritise the voices of the learner could alleviate concerns by providing valuable information as to how children experience and express their connection with the natural environment. In order to gauge a child’s (dis)connection, environmental education ought to focus on research with children, as a distinction from research on children, and how they socially construct their relationship with the natural world.

The chapter also points out that establishing environmental education’s perceptions and understandings of the natural environment is crucial when considering its influence on how those involved identify with the natural world. Subsequently, an examination of concepts of ‘the environment’ and ‘nature’ find nuances and contradictions in how adults and children perceive their natural surroundings. Qualitative research is minimal and publications pay little heed to the understandings of the learner or how insights would contribute to a more progressive approach within environmental education.

Overall, the growing body of research linking children’s cognitive development, and emotional and spiritual wellbeing with time spent outdoors which further establishes arguments for the disconnection hypothesis without a critical examination as to the concepts that underpin it. The link between children’s personal development and subsequent impact on environmental sustainability provides valuable information for environmental education. However, it is crucial to pay particular attention to environmental education’s definition and educational approaches. The majority of literature seeks to reconnect children through environmental education programmes that are structured and work with formal education. To what extent this relationship benefits environmental education remains uncertain. Through an in-depth examination of relevant literature the following chapter critically examines the concepts that underpin
environmental education efforts providing further information regarding current trends and practices.
Chapter 3

Environmental education: A critical review

3.1 Introduction

The majority of environmental education literature seeks to (re)connect children through environmental education yet gives little consideration to children’s own experiences or indeed question to what extent a particular type of connection has decreased. Through an in-depth examination of relevant international literature this chapter goes one step further to critically investigate the origin, purpose and transformation of environmental education. It examines definitions of environmental education and compares and contrasts key approaches and dominant practices to better understand contemporary arguments within the field and concepts that underpin its efforts. In doing so, the chapter fulfils two functions: to synthesise seminal publications in environmental education and to identify past and present trends in social science research on environmental education. Finally, it pays particular attention to the tone and phraseology of policy-relevant definitions so as to critically analyse concepts that underpin environmental education. It develops a typology of approaches that demonstrates commonalities and contradictions within this field of research.

Interestingly, contemporary research continues to allude to early models, definitions, and debates that surround environmental education, thus making limited contribution to the progress of the study of environmental education overall. To address this issue, this thesis develops its own working definition of environmental education that links broader concepts of sustainability, education and the natural environment found in the literature. In doing so, it emphasises learner relevancy as a central part in developing environmental attitudes, behaviours, and sustainable lifestyles. A subsequent survey of key social-science contributions finds a number of educational approaches and practices that limit the development of the field. This is particularly the case regarding the relationship
between environmental education and formal education. However, the critical review of academic approaches and methodologies identified key areas for improvement which this research questions and subsequently further develops.

Based on a thorough review of the field, the chapter presents an innovative theoretical framework that synthesises key concepts in environmental education research and practice and that aims to guide the empirical part of this thesis, most notably the analysis and interpretation of the primary interview data in Chapters Five, Six and Seven. Overall, this chapter seeks to capture the conceptual and definitional diversity within environmental education research, which offers interesting angles and insights but which also tends to hamper concerted efforts to prioritise environmental education across all levels of formal and informal education.

Section 3.2 examines key definitions of environmental education to ascertain their purpose and connections to wider education and sustainability debates. It reveals how widely used ‘official’ definitions of environmental education tend to link educational efforts to environmental problem-solving, management and monitoring of resources for human consumption. At the same time, there is limited work on alternative views of the natural environment as part of any sustainability process. Contradictions and a lack of distinction as regards the purpose of environmental education compels this research to present its own working definition. In doing so, this research brings forward current models of environmental education and provides a timely and notable contribution to ongoing debates.

Section 3.3 examines the various types of environmental educational approaches and practices which are discussed in literature. The overlapping of practices reveals repetition in the field and also a preoccupation with integration with formal education. The mainstreaming of environmental education remains an aspiration, partly because
educational approaches perpetuate it as an ‘add-on subject’ rather than an intrinsic part of any formal educational effort. The concluding part of this section provides an integrated approach to environmental education that advocates changes in environmental education practices to incorporate education outside of the school environment and also across all areas of education, including primary, secondary, tertiary and adult and continuous education.

Following the examination of key literature in Chapter Two and in the first part of Chapter Three, Section 3.4 presents the theoretical framework of this thesis. It further develops an existing typology of conceptions and conceptualisations of environmental education to address gaps within the field to provide new evidence for environmental education into the future. The project-specific framework provides a unique opportunity to critically examine environmental education from the perspective of those involved in teaching and learning. The theoretical framework will guide the analysis and investigate concepts of education, of the biophysical environment and of sustainable development that underpin environmental education as expressed by environmental educators, school staff and families. Section 3.5 provides a detailed summary and conclusions of the chapter.

3.2 Definitions of environmental education and their historical transformation

During the 1960s and 1970s a number of definitions of environmental education emerged partly in response to a rapid rise in global environmental concern. These include visible air and water pollution, greater awareness of population growth, rapid economic development and the depletion of environmental resources (Gough and Gough, 2010). Within that context many international agreements frequently defined environmental education as a multi-disciplinary educational approach to learning that develops environmental knowledge, awareness, attitudes, behaviours, and active participation (UNESCO, 1975, UNESCO, 1977, 1992). The ultimate aim of environmental education is to produce an environmentally sustainable society. However, this model often
overlooks the development of a meaningful or emotional connection between humans and the natural environment. It has been argued that being in the outdoors for recreation and educational experiences which follow the exploration of flora and fauna, is an important starting point for environmental education and the process toward long-term environmental sustainability (Bögeholz, 2006, p. 66, Drissner et al., 2014, p. 10). As discussed in Chapter One, for children especially developing a sense of responsibility through active play, enjoyment and the use of the senses enhances their understanding of and relationship with the natural world. Therefore, a holistic perspective can play an important role in the development of sustainable environmental and behaviours (Loughland et al., 2003, RSPB, 2013).

However, a more holistic perspective that combines cognitive and affective aspects of education is often neglected, as environmental education research offers more narrow and at times incompatible definitions as to how and in what way it seeks to achieve environmental sustainability. In practice, on the other hand, environmental education is often loosely defined which often works with or is assimilated into other discourses. Originally synonymous with hands-on experiences through nature or agricultural studies, environmental education has been criticised for its lack of definition.9

Naturally, concepts of environmental education have evolved over time. The transition to modernity, for example, coincides with changes in people’s attitudes towards the natural environment and sustainability. A significant shift in how environmental knowledge is transmitted has accompanied this process (Share et al. 2007). More recently, environmental education theories have expanded to include emerging concepts such as

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9 This also refers to loose phraseology and terminology, for example, ‘Ecological Education, Conservation Education, Camping Education, Outdoor Education, Environmental Science Education’ (Educational Products Information Exchange, 1971 cited in Disinger, 1983, p. 18).
ecological literacy, place-based education, ecophobia\textsuperscript{10}, ecophilia\textsuperscript{11} education and/or sustainable development, sustainable education, education for sustainability, environmental education and sustainable development, (Stone and Barlow, 2005, Sterling, 2001, Sauvé, 1996, Vare and Scott, 2007, Wade, 2008, Hume and Barry 2014). As environmental education continues to develop and grow, an analysis of key definitions becomes all the more important in identifying what kind of environmental message or agenda it transmits to the learner.

One early definition by Stapp et al. (1969) outlines environmental education to be:

\[\text{[A]imed at producing a citizenry that is knowledgeable concerning the biophysical environment and its associated problems, aware of how to help solve these problems and motivated to work towards their solution}\]

(p. 34, emphasis in original)

The three underlined words underpin the essence of many early and contemporary approaches to environmental education, namely to produce environmentally knowledgeable, aware, and motivated citizens. Importantly, this is quite a formal definition that does not allude to generating a sense of appreciation or an emotional connection between citizens and the biophysical environment. Nor does it establish a point of view as to whether humans are a part of, distinct from, or intrinsically bound with the biophysical environment. Stapp et al. (1969), focus on the biophysical environment as an entity to manage, pertaining to a managerial role and without a concept of interconnectedness as part of the process to solve environmental problems.

\textsuperscript{10} Ecophobia argues that the teaching of environmental problems overwhelms some children. This can lead to a sense of helplessness and avoidance to solve such issues (Sobel, 2008, 1996, p. 5)

\textsuperscript{11} Ecophilia argues for the development of empathy and intimate relationship between children and the natural environment (Sobel, 1996, p. 6) (section 2.2).
Another commonly quoted classic definition of environmental education originates from a report produced by the International Union for the Conservation of Nature and Natural Resources (IUCN). This was part of the proceedings for the *International Working Meeting on Environmental Education in the School Curriculum* held in Nevada, USA, 1970 (Palmer, 1998, p. 6, 7).

Environmental education is the process of recognising values and clarifying concepts in order to develop skills and attitudes necessary to understand and appreciate the interrelatedness among man, his culture and his biophysical surroundings. Environmental education also entails practice in decision-making and self-formulation of a code of behaviour about issues concerning environmental quality.


This definition is also formal in tone, referring to environmental education’s role in developing environmental attitudes and behaviours for environmental sustainability. Unlike the definition advanced by Stapp *et al.* (1969), this definition relates to building connections between people and their biophysical environment. It provides more detail as to the purpose of environmental education including the development of values and of a long-term appreciation of the natural environment. However, the context of ‘human culture and his biophysical environment’ does signify a concept of mankind as separate from the biophysical environment, and is also gendered in nature.

The first inter-governmental conference on environmental education was held in Belgrade in 1975 by the United Nations Educational, Scientific and Cultural Organisation (UNESCO) and the International Environmental Education Programme (IEEP). Commonly known as the Belgrade Charter, it presented a framework for environmental education linking the development of knowledge and skills to sustainable action within society. In line with previous definitions, there is an acceptance of a human-environment distinction that does not incorporate or promote a holistic or interconnected perspective.
To develop a world population that is aware of, and concerned about, the environment and its associated problems, and which has the knowledge, skills, attitudes, motivations and commitment to work individually and collectively toward solutions to current problems, and the prevention of new ones.

(UNESCO 1975, p. 3)

The Belgrade Charter identifies the biophysical environment as a problem and environmental education as part of the solution. This is significant as not only is there a distinct concept of the biophysical environment (problem) but also that educational approaches emphasise the minimisation and prevention of further environmental damage (solution). This highlights quite a narrow and one dimensional understanding of the natural environment and also the expectations of environmental education.

The charter led to the first inter-governmental conference on environmental education hosted by UNESCO and the United Nations Environmental Programme (UNEP) in Tbilisi, USSR, 1977. This conference promoted a multidisciplinary approach to environmental education, again within a rationalised and managerial context:

Environmental education is the result of the reorientation and dovetailing of different disciplines and educational experiences which facilitate an integrated perception of the problems of the environment, enabling more rational actions capable of meeting social needs to be taken.

(UNESCO, 1977, p. 1)

The purpose of environmental education, according to the Tbilisi Declaration (1977), is to educate society in an interdisciplinary and comprehensive way about the biophysical environment. It is to provide the necessary knowledge on all aspects of the biophysical environment, thereby developing an appreciation of, as well as ethical and moral obligations towards, its protection. In doing so, the Declaration encourages pro-environmental behaviour that also reflects social responsibility, sustainability and political activism. It recommends environmental education to occur at local, national and
international levels and across all ages. It recommends the inclusion of formal (primary, secondary, third level education) and informal approaches (media, government agencies, legislation, NGO, interpretative and educational resources). All in all, the Tbilisi Declaration puts forward a more holistic perspective of environmental education as part of developing environmental attitudes and behaviours. However, environmental education does not appear to prioritise personal wellbeing, enjoyment or recreation as part of environmental sustainability. Instead, environmental education fulfils a particular purpose, namely to solve and prevent environmental degradation.

[...] environmental education should provide the necessary knowledge for interpretation of the complex phenomena that shape the environment, encourage those ethical, economic and aesthetic values which, constitute the basis of self-discipline, will further the development of conduct compatible with the preservation and improvement of the environment.

(ibid, p. 2)

Overall the language within many of these early definitions emphasises a highly formalised and rational approach to environmental education. They embrace a more or less linear model of knowledge acquisition, which in environmental education practice translates into a one-way path of information from teacher to learner. There is a trend that suggests that environmental education equips people with the necessary skills to solve, protect and manage environmental problems, aided by the adoption of sustainable environmental attitudes and behaviours. However, these approaches do not reflect a socially critical education of the natural environment that encompasses more self-reflection, empowerment and the creation of new (environmental) knowledge. This research seeks to address this gap as more critical approach to education improves environmental education’s relevance by providing the opportunity to understand human-environment on a more meaningful level.
More recently, environmental education has become inextricably linked to questions surrounding sustainable development, though this is not always evident. Sustainable development is complex as it carries considerable uncertainty as to its definition within both academic and public debate, as well as policy (Rau and Fahy, 2013, p. 4, Bonnett, 2013). However, how and in what way people are educated about the natural environment is connected to the adoption of long-term sustainability goals. It is difficult to analyse definitions of environmental education without examining its role within a broader context of sustainable development. The definitive definition of sustainable development that originates from the Brundtland report (1987) states:

Sustainable development seeks to meet the needs and aspirations of the present without compromising the ability to meet those of the future

(World Commission on Environment and Development (WCED), 1987)

This definition draws criticism for being ‘ambiguous and vague’ in its clarification of the ‘needs of future generations’ and ‘what is to be sustained’ (Pape and Heisserer, 2011, Bonnett, 2007, 2013). This ‘creative ambiguity’ allows people to ‘engage in a multitude of ways, and a multitude of levels from the local, to the truly global’ (Blewitt, 2012, p. 52). Giddings et al. (2002) also note how this ambiguity led the way for ‘widespread acceptance’ of the definition but also describe it as a ‘political fudge’ (p. 188; cf. Rau and Fahy, 2013). The Brundtland report also mentions the role of environmental education within sustainable development. It states:
Environmental education should be included in and should run throughout the other disciplines of the formal education curriculum at all levels - to foster a sense of responsibility for the state of the environment and to teach students how to monitor, protect, and improve it. These objectives cannot be achieved without the involvement of students in the movement for a better environment, through such things as nature clubs and special interest groups.

(WCED, 1987, p. 75)

The Brundtland report recognises the importance of environmental education in formal and informal education. Similar to earlier environmental education definitions, the report carries a rational tone and ‘a sense of responsibility’ toward fostering positive environmental attitudes, behaviours and sustainable lifestyles. The use of the word ‘teach’ suggests organised and structured lessons with specific environmental outcomes in mind. There is also an absence of developing empathy or connection between humans and the natural environment. Unlike earlier definitions, emphasis is placed on the environment being intertwined with both the economy and society. These three pillars of sustainability (environment, society, economy) are not ‘separate crises: an environmental crisis, a development crisis, an energy crisis. They are all one’ (ibid. p 6). With regard to environmental education, the report recommends teacher training so as to increase environmental attitudes and awareness amongst learners while also encouraging greater understandings of the natural environment and links to development overall. Though a definition of ‘development’ is elusive, the report clearly demonstrates a shift in what environmental education ought to achieve long-term by incorporating social and economic realities in relation to all aspects of the biophysical environment. It states:

A critical point of intervention is during teacher training. The attitudes of teachers will be key in increasing understanding of the environment and its links with development

(WCED, 1987, p. 78)
Being inextricably linked to sustainable development debates, more recent definitions of environmental education are closely linked to Education for Sustainability and/or Education for Sustainable Development (ESD). The publication of *Caring for the Earth: A Strategy for Sustainable Living* (1991) connects environmental education with broader emerging concepts of sustainability which find ‘education for sustainability as the central role of environmental education in the 1990s’ (Tilbury, 1995, p. 198). Similar to a number of earlier definitions of environmental education (Stapp *et al.*, 1969, Belgrade Charter, 1975), a rational tone is present in the publication as well as a distinction between humans and the natural world. The publication states:

> Sustainable living must be the new pattern for all levels: individuals, communities, nations and the world. To adopt the new pattern will require a significant change in the attitudes and practices of many people. We will need to ensure that education programmes reflect the importance of an ethic for living sustainably and that information campaigns are mounted to disseminate it.

(IUCN/UNEP/WWF, 1991, p. 5)

The merging of environmental education 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. Environmental education plays a prominent role here in promoting and implementing education for sustainable development. Again a formal tone exists, with development education being a priority within basic education. However, a critical understanding of what ‘sustainable’ is or what ‘development’ means is absent. Also absent is the encouragement of a connection or empathy towards one’s natural surroundings.
Education is critical for promoting sustainable development and improving the capacity of the people to address environment and development issues. While basic education provides the underpinning for any environmental and development education, the latter needs to be incorporated as an essential part of learning.

(UNESCO, 1992, p. 320)

The Thessaloniki Declaration (1997) marked the 20th anniversary of the Tbilisi Declaration and the promotion of education for sustainability but it also marked decreasing support of the concept of ‘environmental education’ in the international community. The term appears only twice in the charter with education for the environment and sustainability being understood as the ‘new and holistic approach to environmental stewardship’ (Knapp, 2000, p. 33). The Declaration highlights the increasing marginalisation of environmental education in policy-relevant definitions with further movement towards concepts of education for environment and sustainability.

Environmental education, as developed within the framework of the Tbilisi recommendations and as it has evolved since then, addressing the entire range of global issues included in Agenda 21 and the major UN Conferences, has also been dealt with as education for sustainability. This allows that it may also be referred to as education for environment and sustainability.

(UNESCO – EPD, 1997, p. 2)

The establishment of a UN Decade of Education for Sustainable Development (DESD) from 2005 to 2015 goes beyond environmental education in order to reach education for sustainable development. ESD is not equated with environmental education rather environmental education is now part of ESD’s wider context to include ‘socio-cultural factors and the socio-political issues of equity, poverty, democracy and quality of life’ (UNESCO, 2006). Here, environmental education moves away from solving environmental problems (pollution, poverty and climate change) per se to the development of social, cultural and economic sustainability. This broadening scope finds a definition of environmental education uncertain particularly as many call for ‘holistic
comprehensive discussions and policy synergy’ (Ahmedabad Recommendations, 2007, p. 3). At an international conference on environmental education, India, 2007, it was acknowledged that the ‘state of the planet has gone from bad to worse’ highlighting the marginalisation of ESD and environmental education within that context (ibid, p. 3). To reorient efforts it recommends to:

Base environmental education on an understanding of the inter-related dynamics of environment, society, culture and economics, and an understanding of the nature and causes of risks and issues that impact on socio-ecological relations, systems and structures at local, national and global levels

(ibel, p. 8)

The emphasis on interrelations between mankind and the natural environment is encouraging as is the more holistic tone. However, it has also been argued that an emphasis on environmental protection and conservation as found in earlier definitions (Stapp et al., 1969, UNESCO, 1977) should not be ‘not be lost in ESD’ and that ‘there is a real danger of losing ‘environment’ from the aim of environmental education’ overall (Kopnina, 2012, p. 712). This suggests that definitions of environmental education remain elusive and marginal following the integration with emergent concept(s) of sustainability.

Overall, the majority of definitions of environmental education clearly demonstrate a linear model whereby instruction and the provision of information is expected to result in pro-environmental attitudes and behaviours, and ultimately, sustainable development. This dominant managerial approach promotes the development of environmental awareness, knowledge and appreciation so as to solve environmental problems. However, a single definition of environmental education is problematic considering its growing links with environmental, social and economic goals so as to achieve long-term sustainability. Within sustainable development and ESD debates, the purpose of environmental education becomes less visible as wider social and economic objectives
are embraced, potentially overshadowing the role of the environment in these developmental processes.

Table 3 below provides an overview of key environmental education definitions.
### Definition of EE

<table>
<thead>
<tr>
<th>Definition of EE</th>
<th>Key Features</th>
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<tbody>
<tr>
<td>Stapp et al. (1969) – Develop an aware, knowledgeable and motivated society so as to solve environmental problems</td>
<td>Formal and didactic tone. Development of an emotional connection, interconnectedness, moral, and ethical obligations is absent</td>
</tr>
<tr>
<td>IUCN (1970) - Develop a citizenry that fosters environmental attitudes and behaviours so as to solve and manage environmental problems</td>
<td>Focus on environmental skills, attitudes and a code of behaviour. Human-environment distinction but promotes interconnectedness</td>
</tr>
<tr>
<td>Belgrade Charter (1975) – Links the development of environmental knowledge and skills to sustainable action, working toward solving and preventing problems</td>
<td>Human-environment distinction, participation so as to solve and manage environmental problems. Formal and didactic tone</td>
</tr>
<tr>
<td>Tbilisi Declaration (1977) – Develop knowledge, appreciation, ethical and moral obligations toward the biophysical environment and its protection. EE - interdisciplinary, and multidisciplinary</td>
<td>Rational and managerial tone. Solve environmental problems through social responsibility, political activism. Clarifies that EE occurs in formal and informal educational approaches</td>
</tr>
<tr>
<td>Brundtland Report (1987) – Within a concept of SD EE occurs in formal and informal education, fosters a sense of responsibility for the biophysical environment and its links to development</td>
<td>EE within an emerging, broader concept of SD. Emphasis on linking social and economic realities with the biophysical environment. ‘Development’ undefined and empathy, sense of place or wellbeing is absent</td>
</tr>
<tr>
<td>ICUN/UNEP/WWF (1991) – Within a concept of ESD, EE is central in education towards sustainable living</td>
<td>Formal and rational tone. Emergence of ESD with emphasis on education for sustainability, EE part of this context to equip people with skills for sustainable living, manage and monitor environmental problems</td>
</tr>
<tr>
<td>UNESCO (1992) – Within a concept of ESD, EE is responsible for implementing ESD and address environmental and development issues</td>
<td>A definition of EE is problematic as it promotes the implementation of education for SD</td>
</tr>
<tr>
<td>UNESCO - EPD (1997) – Replacement of EE for education for environment and sustainability</td>
<td>Suggests that EE be referred to as education for environment and sustainability</td>
</tr>
<tr>
<td>UNDESD (2006) – Integration of social, economic developments with environmental sustainability</td>
<td>EE incorporates social and economic sustainability, rational in tone</td>
</tr>
<tr>
<td>Ahmedabad Recommendations (2007) – Awareness as to the complexities of environmental sustainability versus human – environment relations</td>
<td>Holistic in tone yet EE definition remains elusive within broader concept(s) of sustainability</td>
</tr>
</tbody>
</table>

Table 3: Evaluation of key environmental education definitions
The majority of literature does refer to environmental education’s lack of definition but also how definitions have changed over time (Duvall and Zint, 2007, Stevenson, 2007, Marcinkowski, 2010, Bonnett, 2013). The integration with ESD and/or sustainable development connects to developments in wider society regarding people’s environmental awareness and pro-environmental behaviour. Considering that environmental problems show no sign of abating, there is an increased need to equip people with the necessary skills to address the issues involved. Environmental education is marginalised within developing concepts and a clear understanding as to its aims and objectives remains elusive. Figure 1 presents the historical timeline and development of environmental education definitions with (e)merging concepts of sustainability. The timeline puts into context recent criticisms surrounding environmental education’s possible (in)effectiveness which this research argues, is in part due to the absence of one universal definition overall.

Figure 1: Timeline: Environmental education definitions
Overall, a critical analysis of the key definitions of environmental education listed in Table 3 and their historical development, as detailed in Figure 1, reveals many shared characteristics and traits. Firstly, many definitions adopt a tone that marginalises any non-cognitive connections with the biophysical environment, including people’s attachment to a particular landscape or view that shapes their sense of place, or any emotional connection. Secondly, environmental education is said to be multidisciplinary and to occur in both formal and informal educational contexts. However, whether and to what extent this occurs in practice remains unclear. This calls for a critical revaluation and potential redefinition, which forms a central aspect of this thesis.

A working definition of environmental education for the purpose of this research realigns trends within definitions to present a more balanced pedagogical approach to environmental education that takes into account both teacher and learner. This contrasts with many traditional definitions which focused more or less exclusively on educational outcomes, with little appreciation as to the process of learning or the learner as an active agent of his/hers environmental education. Considering the criticisms regarding the failure of environmental education, a definition also requires greater clarity for practical educational efforts and approaches. In doing so, the working definition adopts an informal, humanistic tone to promote intimate connections with the biophysical environment. Similar to previous definitions, it promotes both formal and informal educational approaches. However, it specifically advocates for outdoor hands-on experiences as part of any environmental education effort. The working definition emphasises learner relevancy as a central part in developing environmental attitudes, behaviours, and sustainable lifestyles. Therefore, this thesis defines environmental education as:
Learner relevant environmental education approaches and practices that work with the social, economic and political barriers in order to facilitate children’s experiences in the natural environment and their development of environmental attitudes, appreciation, empathy, moral and ethical obligations towards human-environment relations.

This research argues that unclear definitions of what environmental education is and what it is expected to achieve have contributed to poor outcomes, and ultimately its marginalisation within research and policy. Moreover, the prevalence of linear models potentially undermines the purpose of environmental education and weakens its effectiveness. Considering the seriousness of environmental damage and resulting demands for immediate action, are such linear-rationalistic definitions regarding environmental education still relevant? Some argue that environmental education does not address global environmental issues or ‘offset the severity of environmental degradation and serious problems associated with human reproductivity’ (Hungerford and Volk, 1990, p.15). More recent contributions state that environmental education has failed in terms of changing behaviours ‘to stave off the detrimental effects of climate change’ (Saylan and Blumstein, 2011, p. 1). Recent debates among environmental education practitioners question how effective, if at all, the educational efforts of environmental education have been regarding consumption levels, use of fossil fuels and its associated environmental problems such as climate change and global warming (Orr, 2004, Saylan and Blumstein, 2011).

To summarise, an examination of environmental education definitions for this study clearly identifies underlying concepts of education, the biophysical environment and the links to sustainable development/ESD. The majority of definitions are similar in tone, outlining educational outcomes and focus on solving environmental problems. Finding a narrow and dualistic perspective with regard to human-environment relations this research presents a working definition that prioritises other aspects of people’s understanding of the natural environment. In doing so, it reorients the discourse within policy-relevant definitions to emphasise the process of learning and sees a hands-on
connection with the natural world as part of the wider environmental sustainability process.

3.3 Environmental education: Theory and practice

A critical analysis of educational approaches and practices remains underdeveloped in environmental education research to date, which frequently distinguishes between policy-relevant definitions and approaches but not necessarily how environmental education actually translates into practice. This clearly ignores the importance of investigating dominant practices of environmental education so as to understand how and in what way children learn about the natural environment. Mapping the development of practices helps to identify patterns but also possible weaknesses and how those can influence a child’s (environmental) education. Considering the growth in contemporary educational approaches which question how environmental education integrates clearly with formal education, a critical examination as to the potential impact of practices is necessary for the development of the field overall (Hunger and Volk, 1990, Scott and Oultan, 1999, Orr, 2004, Sauvé, 2005). This research makes a valuable contribution to social research on environmental education by investigating the nature and effectiveness of different forms of environmental education on the learner.

Many publications distinguish between education about, for, or in the environment, which continues to be ‘a powerful way of viewing the field’ (Lucas, 1972, p. 128, Scott and Oultan, 1999, p. 92). Education about environment refers to producing an environmentally knowledgeable citizenry (Lucas, 1972, p. 128). Education for the environment focuses on preservation and conservation that enhance the continuation and quality of human life (ibid, p. 104). Education in the environment reflects education outside of the classroom (ibid, p.128). Education about and for are goal-orientated approaches whereas education in the environment relates to the teaching techniques that are hands-on and geared towards experiential learning. It is difficult to appreciate whether or not the approaches are part of (or separate too) mainstream education. An
association with formal education is assumed, as they circumnavigate structured educational goals and objectives.

As far back as 1974 the School Council in Britain published a document entitled *Project Environment* which linked environmental education with relevant curricular areas. The publication talked about education *about, from and for* the environment (Palmer, 1998, p. 12, Uzzell, 1999, p. 398). Education *about* the environment refers to ‘investigatory and discovery […] to amass information’ (Schools Council, 1974, cited in Palmer, 1998, p. 137). Education *from* the environment uses the environment as a resource for learning and ‘realistic activities’ in various curricular subjects (Palmer, 1998, p. 137). Education *for* the environment refers to developing concern for the environment, acquisition of knowledge, awareness, behaviours and motivations. Palmer (1998) subsequently notes the increase of education *for* the environment during the 1990s in response to global acknowledgement of sustainable development and education for sustainability (p. 137). These approaches reveal efforts to balance social and environmental responsibility and to provide educational experiences in the outdoors.

That said, complexities arise as interpretations, variations and adaptations of these educational approaches have developed. Disinger (1983), for example, provides a perspective analysis of the approaches, stating that education *about* the environment coincides with the development of skills that are reflected through education *for* the environment and its preservation (p. 25). Education *in* the environment refers to out-of-the-classroom instruction, or the biophysical environment, ‘and/or the social context in which groups of people […] exist’ (Lucas, 1972 cited in Disinger, 1983, p. 25). Between Lucas (1972), *Project Environment* (1974) and Disinger (1983), there are varying forms of terminology for educational approaches that emerge; education ‘*about* and *for*, and *in* and *about, from* and *for* the environment.
In contrast, Davies (1998) discusses the same approaches but in reverse; education in, for and about the environment. Education in the environment includes direct experiences in the biophysical environment in order to develop empathy and positive attitudes. Secondly, education about the environment involves moral and ethical appreciation of eco-systems and thirdly, education for the environment consisting of political dimensions and commitment to social environmental action (p. 118). This brings to the fore a more holistic approach that infers moral and political commitments towards the natural environment. Nevertheless, education for the environment epitomises the purpose of environmental education, and is often converted to education about the environment from a classroom and curricular perspective (Gough and Gough, 2010). Therein, despite the overlapping and evolving approaches that include socially critical education with the environment, environmental education is connected to and steered by traditional education paradigms (ibid, p.4). The preoccupation and confusion as to the myriad of educational approaches that include, education in, about, for and with the environment leaves little room to systematically critique environmental education per se, or to scrutinise its relationship with formal education.
Figure 2 presents a timeline and evaluation of environmental education approaches.

Many commentators have argued that environmental education needs not only to reform its definition but also to pay particular attention to its role in mainstream formal education, which may leave it vulnerable to having a subsidiary status (Orr, 2004, Stone and Barlow, 2005). In fact, despite moves to mainstream environmental education, the sector often takes a back seat within the formal education system (Disinger, 1983, Hungerford and Volk, 1990, Scott and Oultan, 1999, Orr, 2004, Stone and Barlow, 2005). This remains an unresolved issue within the field which clearly affects its overall impact and effectiveness. For example, Lucas (1972) acknowledged that in response to environmental concerns, pressure fell on formal education ‘to help restore and maintain a viable life-support system’ (p. 7). However, the place of environmental education in formal education was, ‘no guarantee that any change will occur in the condition of the environment’ (ibid, p.6, 7). This latter comment illustrates uncertainty about environmental education and its ability to integrate into, change or develop the education system to prevent further environmental damage. Davies (1998) finds that environmental education is not fully involved in both ‘rhetoric and practice of education generally’ (p.
Numerous more recent publications also discuss environmental education’s limitations and marginal position within mainstream education (Gough and Gough, 2010, Stevenson, 2007, Rickinson, 2001). This thesis builds on these discussions but goes further to show that environmental education has not yet occupied a sufficiently significant role within formal education, so far failing to establish itself as an integral part of a child’s education.

While many environmental education initiatives produce useful proposals for more innovative and insightful educational methods, these proposals have not been actively heard or pursued, further adding to the marginalisation and vulnerability of environmental education. As environmental degradation continues to increase and children are spending more time indoors (cf. Natural England, 2010, 2011, 2012), a critical analysis of the relationship between the sector and formal education is fundamental to any future success. As will be shown throughout this thesis, barriers within formal education including, curriculum overload, lack of teacher confidence and knowledge, costs, transport, and health and safety issues prevent regular environmental education, especially pedagogical efforts based on field-based experiential learning (NCCAa, 2010, p. 5, 6, Natural England, 2010, p. 4-6). In both the UK and Ireland there is no legislative requirement for children to be outdoors and to learn in the biophysical environment on a regular basis. Beames et al. (2009) finds that Scotland’s new Curriculum for Excellence, for example, supports learning outside ‘but there remains no statutory requirement for Scottish pupils to learn outdoors’ (p. 32).

Possible tensions between environmental education and formal education certainly deserve attention in this context. As Stevenson (2007) argues, environmental education frequently contradicts the dominant functions and ethos of mainstream education. Environmental education encourages learners to be active thinkers, to understand the ‘plurality of environmental ideologies’, yet within formal education learners are often
‘recipients of other people’s knowledge and thinking’ (Scott and Oultan, 1999, Stevenson, 2007, p. 143, 147). Environmental education challenges education ideologies, promoting environmental knowledge while also advocating alternative pathways of learning for students. Promoting social change by transforming value and belief systems is also a central feature of environmental education.

Education is often seen as a major driver of social, economic and personal change (Stevenson, 2007, p. 145). On the other hand, formal education frequently serves to maintain the status quo within modern societies, especially with regard to socio-economic and cultural dynamics that coincide with significant power differentials. It also perpetuates prevailing conditions regarding gender, ethnicity, and age. Therefore, and quite the opposite to the function of environmental education, education provides a platform to reproduce social and economic inequalities, injustices and exclusion in society (Tovey et al., 2007, Macionis and Plummer, 1997, Huckle and Sterling, 2008, Blewitt, 2010, p. 3469).

It has been argued that until there is a ‘major paradigm shift in education’ toward more ‘ecological thinking’, formal environmental education as it stands will ‘form only a small part of an individual’s education relating to the environment’ (Palmer, 1998, p. 240, Benedict, 1998). Consequently, environmental education has often ‘slipped between the cracks of the boundaries between the subject areas’ (Gough and Gough, 2010), partly because it does not fit traditional curricular standards. For example, a recent report investigating curriculum overload in Ireland reveals that many teachers have concerns and strong views to ‘deload’ the primary school curriculum (NCCA, 2010a, p. 5, 6, 53). The curriculum covers too many subjects putting pressure on teachers to complete lessons for each academic year. As a result, environmental education frequently ends up as an afterthought or add-on, partly because it often ranks near the bottom of the hierarchy of school subjects.
Considering the lack of definition and contentious relationship between environmental education and formal education the effectiveness of current practices is uncertain. Recent developments in the literature identify ‘meaningful’ environmental education to occur outdoors that largely reflect concerns to resolve complex socioecological issues (Play England, 2008, Ofsted, 2008, Natural England, 2010, eftec, 2011, Wals et al., 2014). This highlights continuing confusion between the purpose of educational approaches versus how children learn about, engage with, and experience environmental education overall.

3.4 Theoretical framework for this study

A central aim of this thesis is to capture the concepts that underpin environmental education and its potential effectiveness in (re)connecting children with the natural environment. To find ways to increase transparency and to better probe the theoretical challenges within the field, it is necessary to develop a theoretical framework to conceptualise and gain valuable insights into the experiences of those involved in environmental education both in learning and teaching. To improve and make a unique contribution to environmental education research, this thesis thus develops and subsequently applies a novel conceptual framework that makes visible, synthesises and extends hitherto taken-for-granted concepts and divergent views within the field. Drawing on Sauvé’s (1996) conceptions of environmental education, it subsequently links environmental education to prevailing concepts of education, the biophysical environment and of sustainable development. This typology provides a comprehensive framework for analytical and self-critical research on environmental education in both theory and its practices. In doing so this thesis addresses a gap in research as to the concepts that underpin current environmental education efforts. This section outlines a theoretical framework to guide the subsequent analysis of interviews with environmental
educators, school staff, parents and their children, to be presented in the empirical part of this thesis.\footnote{12 See Chapters Four, Five and Six.}

Initially, the section develops a typology of educational approaches that reflects the commonalities and contradictions found in the literature. Greater clarity and organisation as to the relationship environmental education seeks to achieve between children and the natural environment is crucial as regards its ability (if any) to shape children’s environmental attitudes and behaviours. Subsequently, this section develops a typology of concepts of the biophysical environment that underpin different strands of environmental education. Appreciating how both teachers and learners view, observe, talk about and interact with their biophysical environment provides valuable insights into their perceptions of human-environment relations. This is crucial to any effort to understand the impact of environment education on educators’ professional life, learners’ experiences as well as on society at large. Finally, this part focuses on concepts of (un)sustainable development that inform environmental education approaches. As previously stated, environmental education is inextricably linked to sustainable development goals, which are often embedded in its objectives.

Figure 3 illustrates the interrelations between these three groups of concepts and their possible impact on environmental education.
Educational paradigms
This thesis further develops key educational paradigms that underpin environmental education programmes with a view to identifying both commonalities and differences within the field. It is essential to understand educational approaches and dominant practices of programmes in order to ascertain how children learn about, engage with, and experience environmental education. What are the dominant practices within environmental education as described by environmental educators? How are they interpreted by school staff and families? The views of those involved in the teaching and learning of environmental education are an integral part of this study. Drawing on work by Yves Bertrand and Paul Valois (1992), Sauvé (1996) distinguishes between three key educational paradigms: rational, humanistic and inventive which identify with
These three paradigms are used to analyse which viewpoint shapes participants’ knowledge of and relationship with the natural environment.

_A rational educational paradigm_

A rational educational paradigm represents environmental education as didactic and promotes the transfer of predetermined knowledge from teacher to learner. The majority of information is affiliated with science and technology, focusing on the symptoms (air pollution) of environmental issues more so than engaging in the overall problem (implications of such, long term solutions). It is often associated with formal education which tends to be ‘atomistic and individual’ and which offers a standardised curriculum that is compartmentalised and concerned with maintaining order in a classroom (Stevenson, 2007, p. 147, Tal, 2004, Sauvé, 1996, p. 16).

For this research a rational paradigm relates to environmental education that is goal-oriented. Here, learners are seen as passive participants in environmental education that focuses on specific aims, objectives and educational outcomes. There is an emphasis on learning facts and scientific knowledge, and global rather than local environmental issues. Learners are not encouraged to develop firsthand knowledge of local areas of natural interest, or develop a connection with it. This paradigm facilitates mostly indoor environmental education, with wider environmental issues and implications for humankind as a guiding principle. This approach to environmental education might involve a field trip or outsourced environmental education programme but does not engage the learner to develop a meaningful relationship with the natural environment on a regular basis.

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13 Section 3.3.
A humanistic educational paradigm

A humanistic educational paradigm focuses on learners developing a connection or sense of interconnectedness with the natural environment through experiential hands-on environmental education. This paradigm promotes personal development, fulfilment, realisations, achievements and accomplishments and aims to ‘develop many facets of the person’ (Sauvé, 1996, p. 16). It also encompasses a respectful and harmonious relationship with the biophysical environment that promotes positive environmental behaviours.

For this research a humanistic paradigm refers to environmental education that is predominantly unstructured, unsupervised and focuses on developing long-term harmonious relations with the biophysical environment. Learners within this context are active participants in developing this relationship which can occur in solitude or in groups. Focus is placed on the learner and the learning process and unlike a rational paradigm it is not fixated on goals, aims and objectives.

Inventive educational paradigm

The inventive educational paradigm advocates the development of critical thinking and problem solving skills through socially critical environmental education. It is questionable to what extent the inventive paradigm influences environmental education considering the embedded relationship with the formal education system. However, the emergence of socially critical environmental education from the data could provide new evidence to contradict and advance arguments in literature. This research argues that learner processes (humanistic paradigm) and a critical construction of knowledge (inventive paradigm) can occur in tandem in environmental education practices. This link provides an opportunity to examine if such educational approaches exist from the empirical data.
An inventive paradigm refers to social change and participation that coincide with political action, to encourage moral obligations and responsibility towards the natural environment. Environmental education programmes are like to critically examine human–environment relations as regards ethics, values and belief systems. In practice this could include environmental debates amongst children or group projects that involve the local community, business, authorities or government representatives to better understand notions of environmental sustainability.

Table 4 below compares and contrasts the educational paradigms to show their potential evidence from data analysis.
Educational paradigm | Potential evidence
---|---
**Rational:**
Formal transfer of knowledge from teacher to learner that is didactic often fact based and not socially critical | **EE**\textsuperscript{14}: Environmental education that is goal-orientated focuses on educational outcomes and often indoors  
**SS**: Didactic and goal-orientated, indoors, minimal group or child-led learning  
**F**: Fact based learning, mediated, indoor, sedentary experiences

**Humanistic:**
Development of many facets of the learner, empathetic and informal approaches promoting a harmonious relationship between society and the natural environment | **EE**: Direct experiences outdoors, initiatives that are learner focused develop curiosity and appreciation  
**SS**: Balance between outdoor and indoor, focusing the processes of learning and learner relevancy  
**F**: Focus on empathy, emotional connections, a sense of ethical responsibility towards natural resources and processes

**Inventive:**
Critical construction of knowledge, social transformation towards socially critical environmental education | **EE**: Question environmental values and belief systems, promote a symbiotic relationship between humans and natural environment  
**SS**: Group and collaborative work that links species, habitats with wider ecosystems to promote humans need for healthy natural resources and processes  
**F**: Question current models of environmental sustainability, for example, recycling, preservation and conservation

**Table 4: Educational paradigms (adapted from Sauvé, 1996, p. 17)**

**Conceptions of the biophysical environment**
The way in which environmental education interprets the natural environment is crucial when considering those involved in teaching and learning. As previously discussed publications pay little heed to the understandings of the learner or how insights would contribute to a more progressive approach within environmental education. The majority of publications do not cater for conceptual investigations, with few addressing conceptual tensions or the diverse understandings of dominant concepts such as the environment or

\textsuperscript{14} EE (Environmental educators), SS (School staff), F (Family).
nature. By understanding the perspective environmental education adopts, it is possible to shed light on what the field actually represents. Sauvé (1992) identifies six concepts of the environment to include, 1) as nature, 2) as a resource, 3) as a problem, 4) as a place to live, 5) as the biosphere and 6) as a community project (p. 10). She states that a comprehensive environmental education ‘proposal’ ought to incorporate all these concepts to appreciate the complexities of person-society-environment relationships network (p. 15). This research further develops Sauvé’s typology that clearly identifies four concepts which provide the opportunity to thoroughly investigate the interpretation(s) of the natural world as described by interviewees. Firstly, this thesis argues that focusing solely on ‘the environment’ is limiting, as ‘nature’ is also a dominant concept in environmental education research and practice. This author modifies the typology so that the environment and nature underpin a broader notion of the biophysical environment but also goes one step further. It combines the concepts of the environment as a resource and as a problem as it reflects these shared characteristics and dominant practices in the literature. A critical analysis of the key definitions of environmental education demonstrates a dominant managerial approach that promotes the development of environmental awareness so as to solve environmental problems. Finally, this research also combines concepts of the environment as a community project as a place to live in order to investigate how people learn about the natural environment through the socialisation process within their cultural framework. An examination of the disconnection hypothesis reveals that environmental education seeks to re-establish a sense of belonging which it argues is fundamental in the development of sustainable environmental behaviours and action. The majority of publications do not take into consideration more cultural understandings of how a connection could be (re)established through society and culture. The typology questions what the field of environmental education

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15 Section 2.3.
17 Section 2.2.
education actually represents as it caters for both conceptual investigations but also the conceptual tensions found in the literature.

Table 5 outlines each concept in detail, in addition to possible examples within environmental education practice. This is followed by a more detailed discussion of the four categories. Overall, Table 5 and the subsequent text reveal the various links between each concept and environmental education and some dominant characteristics and examples of potential evidence that can be expected to emerge from the empirical part of this research.
<table>
<thead>
<tr>
<th>Concept of the biophysical environment...</th>
<th>Type of human-environment relationship advocated</th>
<th>Key characteristics</th>
<th>Potential evidence in interviews</th>
</tr>
</thead>
</table>
| 1. As nature                           | Appreciation, respect preservation             | Human and nonhuman world intrinsically bound | EE: Firsthand activities, experiences outdoors, to promote an intimate connection and long-term pro-environmental attitudes and behaviours  
SS and F: Direct experiences outdoors, emphasis on use of senses, exploration, limited supervision, independent play |
| 2. As the biosphere                    | In which we all live together, into the future | Global concept of planet earth, working together prompting global action | EE: Focus on species, habitats and the links to wider ecosystems, interdependencies, threats  
SS: Case studies or initiatives that focus on all aspects of biophysical environment, threats  
F: Discuss different facets of the biophysical environment, problems, social responsibility, solutions |
| 3. As a resource, as a problem         | To be managed and to be solved                 | Managing resources and monitoring associated problems | EE: Global problems (not local), solutions, action (climate change)  
SS: Goal-orientated environmental management plan, monitor energy, pollution  
F: Monitor energy consumption in the home, environmentally sustainable produce, recycling |
| 4. As a place to live                  | To learn about, to take care of and get involved | Take care of local environment(s), amenities, recreational areas | EE: Use areas of local natural interest to motivate and engage learners  
SS: Case studies on areas of natural interest, provide opportunity to learn about and care about *their* natural environment  
F: Use of local amenities for education, recreation, appreciation, responsibility, shared milieu |

Table 5: Concepts of the biophysical environment (adapted from Sauvé, 1996, p. 13)
Concept of the biophysical environment as:

Nature – Nature is ‘perhaps the most complex word in the language’ because it can refer to both the environment and nature, human and nonhuman world (Williams, 1988, p. 221 cited in Barry, 2007, p. 14). Sauvé (1996) analyses this as the ‘pure’ or original environment - Mother Earth approach - nature to which humans have become detached (p. 10, Sauvé, 2002, p.1). Nature in this sense needs to be appreciated, respected and preserved. Sauvé (1996) details a teaching and learning strategy for this concept as one that focuses on immersion in nature. The concept of nature is used to describe hands-on interaction with the natural world. Environmental education that includes this concept also assists cognitive development, or as Jean Jacques Rousseau (1712-1778) claims ‘through useful tasks such as farming, carpentry and map-making…they enjoy physical things and learning from nature’ (Crain, 2005, p. 14 cited in Flinn, 2009, p. 10). Outdoor environmental education initiatives follow this approach through hands-on activities and games with children that include the senses; touch (different textures), feel (bark of a tree, soil, grasses, rocks), smell (flowers), hear (birds and other sounds) and taste (edible plants, for example, wild garlic, wood sorrel). Being immersed in the biophysical environment gives the opportunity for such encounters to happen, albeit supervised or unsupervised.

The biosphere – This concept responds to arguments in literature focused on global issues and equipping society with the necessary environmental skills and knowledge to prevent further environmental damage. Sauvé (1996) proposes this concept as a place where all humans live together and that educational efforts focus on developing ‘an understanding of the multiple dimensions of the world’ (p. 12). It promotes collective participation in solving global environmental issues and developing an appreciation of the multitude of interdependencies between humans and the Earth. This can be achieved through humanistic educational approaches that coincide with investigative practices similar to the aforementioned concept of nature. If the majority of interviewees describe
environmental education as primarily focused on global environmental problems it will be interesting to investigate to what extent such an approach is relevant to the learner and their relationship with the natural environment.

A resource to be managed and a problem to be solved – The majority of environmental education definitions propose to educate people so as to solve, protect and manage environmental problems in addition, to the adoption of sustainable environmental attitudes and behaviours. This concept relates to an organised, formal, and pragmatic educational approach to environmental education. Here, the biophysical environment is defined as ‘our collective biophysical heritage, which sustains the quality of our life’ and is under threat (Sauvé, 1996, p. 10). Sauvé (1996) mentions a number of educational measures in response to wider environmental concerns and responsibility, for example, waste management and energy consumption. Bögeholz (2006) argues that for ‘educational purposes, nature experiences should include both positive and negative approaches to nature’ (p.81). This raises questions as to the impact of particularly negative environmental messages on children’s perceptions of and relationship with the natural environment.

A place to live and as a community project – The concept interprets the biophysical environment as the area that surrounds the individual, for example, the home, village, school and the need for society to develop a sense of belonging rather than a collective environment. Sauvé (1996) incorporates ‘human, socio-cultural, technological and historical components’ and refers to André Vernot (1989) and his perspective as ‘the development of a theory of daily life’ (p. 11). In doing so, society ‘must become a creator of, and actor in, his or her own environment’. It is something to look after collectively as everyone depends on it for survival. This is an educational process using the local community/environment to teach various curricular subjects. Hands-on experiential education develops learners’ connection to their home and the biophysical environment
around them that potentially develops into environmentally responsible citizenship (Sobel, 2008, p. 131).

Questioning what notion of ‘the environment’ is reflected in environmental education is crucial to understanding what type of relationship is promoted between children and the natural environment. The concepts of the biophysical environment incorporate a number of concepts reviewed in the literature which underpin environmental education. This typology provides a comprehensive framework for analytical and self-critical research on environmental education in both theory and its practices.

**Concepts of sustainable development**

Environmental education is inextricably linked to sustainable development (Hume and Barry 2014), yet an investigation as to what concept of sustainable development underpins it is under-researched. Differing conceptions of sustainable development can influence the kind of environmental knowledge transferred or experienced by learners of environmental education (Bonnett, 2013). Sustainable development can be interpreted as the ‘ultimate goal’ of environmental education; environmental education *for* sustainable development (Sauvé, 1996, p. 18). Sauvé outlines four concepts of sustainable development to include, 1) continuous development, 2) development as dependant on a world order, 3) alternative development and 4) autonomous development. This research merges concepts of continuous development and development as dependant on a world order, as together they incorporate neo-liberal principles, a market-driven society and rational use of environmental resources. They also share similar theories in terms of a more naturalist approach; management and monitoring the biophysical environment through technological innovations, continuous productivity, competition, and economic growth so as to solve global concerns. Alternative and autonomous development is also combined as both advocate for hands-on active participation of citizens in developing an environmentally sustainable society. Referred to as alternative development only, it
focuses on changing social values, and beliefs. Alternative development questions social-environment relations and emphasises a socially critical education of both the individual and community. In that regard, examples within environmental education promote hands-on, outdoor, experiential education taking account of the needs of the students. The concept provides the opportunity to critically investigate to what extent environmental education adopts this approach as described or observed by interviewees.

Table 6 compares these two main sustainable development concepts, including their principal characteristics, connections with particular views of the biophysical environment and educational paradigms. Following the table, there is a detailed account of the concepts of sustainable development.

<table>
<thead>
<tr>
<th>Concept of sustainable development</th>
<th>Characteristics</th>
<th>Associated concepts of…</th>
<th>Potential evidence in interviews</th>
</tr>
</thead>
</table>
| Continuous development            | Environmental resources and problems are managed, and regulated for continuous economic growth within a market-driven society | Biophysical environment  
As a resource,  
As a problem  
As the biosphere  
Educational paradigm  
Rational | EE: Focus on environmental issues, purposive sustainability agenda  
SS and F: Rational management, monitoring of environmental resources at school and home, |
| Alternative development           | Development of sustainable communities that are self-sufficient, favour renewable resources, active participation | Biophysical environment  
As nature  
As a place to live  
As the biosphere  
Educational paradigm  
Humanistic Inventive | EE: Focus on social change, values, beliefs, social-constructionist, holistic perspective towards natural environment and resources  
SS and F: Interconnectedness, harmonious, self-sufficient community |

Table 6: Concepts of sustainable development (adapted from Sauvé, 1996, p. 27)
Continuous development

How and in what way people are educated about the natural environment is connected to the adoption of long-term sustainability goals. This concept suggests a rigid curricular, indoor educational approach to environmental education that could, for example, focus on global more so than local environmental problems, paying little heed of learner relevancy or active involvement. A rational educational paradigm coexists which focuses on fact-based learning and predetermined knowledge transfer from teacher to learner.

According to Sauvé (1996), continuous development refers to economic growth, productivity and competitiveness within a market driven society. Development as dependant on a world order shares similar attributes as it considers that ‘free market and technological innovation bring development’ (p. 22). The biophysical environment is a separate entity to the human world which is monitored and developed for human consumption. Continuous development acknowledges environmental concerns yet adopts a managerial approach as not to affect economic growth. For environmental education learner-led/centred approaches or socially critical education as part of the solving environmental problems process is absent within this concept.

Alternative development

Sauvé (1996) describes the concept of alternative development as a model ‘to live within our means’ (p. 23). This is an ‘endangered concept of sustainable development’ being a radical approach too often sidelined by an economic and market-driven western society. Alternative development focuses less on the ‘global village’ per se than on the ‘globe of interrelated villages’ (p. 24). Both alternative and autonomous development promotes sustainable communities that minimises social and environmental costs, develop indigenous knowledge and the management of natural resources. Within both concepts people are self-sufficient and reliant on members of the community to be active and motivated. They distinguish between needs and desire in terms of natural resource usage and subsequent impact on the biophysical environment on both a global and local level.
Therefore, combined as alternative development only, it adopts democratic processes, renewable resources of energy and to develop a socially critical approach to values and beliefs about the natural environment. The biophysical environment is a place to live, to be part of, look after, enjoy and learn from thus transcending traditional ‘social realties’ (p. 27). Within environmental education this concept associates with a social constructionist approach. It promotes hands-on, experiential education outdoors, at the pace of the learner and without specific educational goals or outcomes. It focuses on developing a connection, interconnectedness, moral, ethical, spiritual obligations, an appreciation and intrinsic value on one’s natural environment.

This thesis captures the experiences of those actively involved in the teaching and learning giving an equal voice to both children and adults (environmental educators, school staff and parents). This unique element of this research helps to portray the experiences of all those actively involved in environmental education. The theoretical framework addresses a knowledge and research gap within publications as to the concepts which underpin contemporary approaches and how they transmit and are experienced by those in the teaching and learning of environmental education.

3.5 Conclusion

This chapter critically examined diverse definitions of environmental education, its key approaches and dominant practices within environmental education research. Analysis of literature finds environmental education definitions to be narrow in scope, rational in tone and preoccupied with terminology. Definitions also focus on formal education as an avenue for environmental education, promoting structure and specific educational outcomes in an attempt to solve environmental problems through sustainable resource management. The sector is hindered by the myriad of approaches but also the influential role of the formal education system. For children, environmental education ought to be engaging, thought provoking and relevant. However, much of the mainstream environmental education literature is preoccupied with the examination of different

Environmental education could strengthen its long-term impact by defining its educational approaches, examine to what extent if (any) they are learner relevant and finally, be clear as to what the sector aims to achieve overall.

In recent decades a universal definition is problematic as environmental education merges with concepts of sustainable development and ESD. Environmental education is marginalised within these broader concepts which can impact on its ability to shape environmental behaviours. This thesis acknowledges the high expectations placed on environmental education and presents a humanistic, holistic and prescriptive working definition of environmental education. The definition emphasises the importance of learner relevancy in environmental education, and the importance of firsthand experiences in the biophysical environment in developing environmental attitudes and behaviours, and ultimately sustainable lifestyles. In doing so, it focuses on the process of environmental education rather than what the outcome ought to be.

An investigation of approaches and practices of environmental education reveals a preoccupation with terminology and efforts to integrate with formal education. This is a concern as environmental education frequently contradicts the dominant functions of formal education. It is argued that the relationship between the two limits the effectiveness of environmental education. It is not necessarily because of the formal education system but rather lack of purpose and comprehensive strategy within the field of environmental education and its dominant practices. The chapter also points out that understandings of the biophysical environment are crucial when considering their influence on how those involved in environmental education relate to the natural world. Subsequently, an examination of dominant concepts of ‘nature’ and ‘the environment’
finds interesting and sometimes subtle nuances and contradictions, which may be reflected in how adults and children report to view their natural surroundings. The lack of qualitative research on this particular topic seems surprising and requires urgent attention. Moreover, many existing publications pay little heed to the understandings of the learner or how insights would contribute to a more progressive approach within environmental education.

The conceptual framework provided in this chapter aims to address gaps within existing research by examining and synthesising concepts of education, the biophysical environment and sustainable development that underpin environmental education thinking in Ireland and elsewhere. Considering the lack of clarity in the literature as to what environmental education is, what it ought to achieve and how it delivers its key messages, the conceptual framework seeks to structure and frame the subsequent analysis of qualitative data, with a view to identifying how teachers and learners experience and understand environmental education. In doing so, this research makes a valuable contribution to the field of environmental education and sustainability research which is relevant to practitioners, policy makers and academic audiences. It also provides vital information as to the strengths and weaknesses of different types of environmental education and provide valuable insights into the effectiveness of current initiatives in Ireland.
Chapter 4
Turning a leaf: Environmental education in Ireland

4.1 Introduction
There have been, and continue to be, attempts at integrating environmental education into formal education both in Ireland elsewhere. At the same time, research on the development of environmental education shows that often environmental education approaches are in conflict with the dominant educational paradigms that underpins formal education in many countries. Using Ireland as a case study, this chapter – Chapter Four – investigates to what extent wider social, political and cultural developments influence the way in which those in teaching and learning experience environmental education. In doing so it provides a clearer picture as to the status and position of environmental education in primary education, focusing in particular on the extent to which it can influence environmental attitudes and behaviours. Furthermore, this investigation also highlights how environmental education both shapes and reflects broader issues within society, including prevailing concepts underpinning environmental education efforts. The chapter finds a number of issues including its status within formal education that limit the effectiveness of environmental education and this strengthens the field by clarifying the position and purpose of environmental education overall.

How effective is environmental education in Ireland? Section 4.2 maps the development of Irish environmental attitudes within existing data sets and documents. Although recent survey data from Ireland (and Europe) suggest that a growing number of Irish people express pro-environmental attitudes, this does not necessarily translate into sustainable behaviour (‘value-action-gap’).\(^\text{18}\) Attitudinal changes provide information about

\(^{18}\text{Gap between the possession of environmental knowledge and awareness, and displaying pro-environmental behaviour (Kollmuss and Agyeman, 2002, p. 239).}\)
environmental values and practices, and the influence on education and the (in)effectiveness of environmental education. Particular attention is paid to concepts of the natural environment to critically understand the contexts of attitudinal changes and possible impact on how children experience environmental education. Identifying issues of perception(s) of the natural environment, this section questions whether greater conceptual diversity exists within the teaching of environmental education.

**Section 4.3** further addresses the relationship between environmental education and formal education as it provides an in-depth examination of five Irish primary school curricula spanning some 140 years. The historical timeline shows not only the position of the subject at primary level but also the concepts of education and the natural environment that underpin it. This is both innovative and timely as it presents in detail changes within education and formalisation of environmental education and their connection with wider political developments during a particularly turbulent era in Irish history and the foundation of the Irish Free State.

The growth of outsourced environmental education programmes available to primary schools reveals alternative approaches and methodologies. **Section 4.4** details state-funded, semi-state funded, and NGO-led schemes that are representative of the sector in Ireland. These schemes show similarities and differences, for example, funding but importantly, concepts of education and the natural environment. As programmes focus on formal education as a primary avenue to educate children, this section questions to what extent this relationship benefits environmental education or its ability to educate children, about the natural environment in a more meaningful way. **Section 4.5** presents conclusions and key findings of this chapter.

**4.2 Mapping Irish environmental attitudes**

Changes in environmental attitudes are reflective of developments in wider society and, at the same time influence the design, content, and dissemination of environmental
education and its role in shaping environmental attitudes and behaviours. It is important to note that this research project is not primarily interested in Irish people’s environmental attitudes per se. Instead, it seeks to connect changes in environmental education with the transformation of environmental attitudes and practices. Data sets, in particular Eurobarometer surveys for example, measure public opinion and are useful as they give a good indication as to how environmental attitudes and behaviours in Ireland compare to those in other European countries. The Eurobarometer surveys span several decades (1971-present) and measure public opinion across Europe. Since 1973, the EU has been monitoring the evolution of public opinion in the Member States, thus helping the preparation of texts, decision-making, and the evaluation of its work (European Commission, 2010). Quantitative in approach, environmental attitude surveys focus on environmental management issues relating to pollution (water, waste, soil, noise), and in more recent times on climate change, global warming, and loss of biodiversity.

During the years 1970-1980 the EU carried out six-monthly Eurobarometer surveys in ten countries, including Ireland. An Taisce (1987) examines four of these surveys, the Irish sample averaging 1,000, with questions of environmental importance (p. 23). The close time frame between each survey suggests that while the average EU attitude increases towards ‘the protection of nature and fighting pollution’, Ireland’s average score actually decreased. A survey in December 1975, for example, found; that with regard to the protection of the biophysical environment and fighting pollution, Ireland ranked third at 46 per cent, France compared with 59 per cent and the EU average of 48 per cent (ibid). In July 1976, another report ranked six areas of interest, with the majority of EU countries ranking unemployment, rising prices, and the ‘protection of nature and fighting pollution’ in their top three. Ireland was the only country to rank the latter last. A further question related to the relative importance of the protection of the biophysical environment and fighting pollution. France places this issue first at 75 per cent; Ireland ranked it last at 49 per cent, with the EU average at 57 per cent (ibid).
The limited environmental concern continued with a report in 1981 finding that on the agreement of ‘stronger measures should be taken to protect the environment against pollution’, Ireland scored lowest with 42 per cent in comparison to EU counterparts (An Taisce, 1987, p. 23). A further Eurobarometer survey in June 1982 asked what ‘hopes’ and ‘fears’ Europeans hold for the next ten-fifteen years. In regard to fears of ‘despoiling of natural life’, Ireland ranks last at 48 per cent, in comparison to Denmark at 77 per cent and the EU average at 57 per cent. In addition, the ten ‘Great Causes’ asked of Europeans included Peace (67%), Human Rights, (45%), Struggle against Poverty (40%) and Protection of the Environment (35%). Ireland holds Peace (45%) as priority number one and Protection of the Environment (20%) last. Another survey in 1983 showed Ireland continuing to rate environmental protection below price control and growth (An Taisce, 1987, p. 23).

Reviewing two more recent Eurobarometer surveys (2005, 2008), it becomes evident that Irish people’s attitudes towards the natural environment have converged with those in other European countries. *Special Eurobarometer: The attitudes of the Europeans’ citizens towards the environment* (2005) asked people in twenty-five EU member states to select five environmental issues that they are most worried about; Ireland’s choices equal the European top five. They include, water pollution (EU 47%/IE 50%), manmade disasters (EU 46%/IE 37%), climate change (EU 45%/IE 39%), air pollution (EU 45%/IE 40%) and the impact on our health of chemicals in everyday products (EU 35%/IE 44%).

In a more recent Eurobarometer survey (2008) that included the same question, four of Ireland’s issues form part of the European top five: climate change, water pollution, air pollution, manmade disasters, and the impact on your health of chemicals used in everyday products (Table 7). In a separate question; ‘when people talk about the environment which of the following do you think of first’, the pollution of towns and cities received an EU average of 22%/IE 22% and protecting nature at 12%/IE 8%
(European Commission, 2008, p. 1). It is interesting to note that both percentages for this question are lower than in the previous survey which showed pollution in towns and cities ranked at an EU average of 25%/IE 29% and protecting nature EU average 22%/IE 13% (European Commission, 2005, p. 5, 6). This suggests a potential ‘distancing mechanism’ in the minds of those surveyed whereby the interconnection between the two issues (pollution and its effect on the biophysical environment) is weakened.

<table>
<thead>
<tr>
<th>Five main environmental issues that you are worried about?</th>
<th>Ireland</th>
<th>EU Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Climate Change</td>
<td>58</td>
<td>57</td>
</tr>
<tr>
<td>2 The impact on your health of chemicals used in everyday products</td>
<td>41</td>
<td>32</td>
</tr>
<tr>
<td>3 Water pollution (seas, rivers, lakes and underground sources)</td>
<td>40</td>
<td>42</td>
</tr>
<tr>
<td>4 Manmade disasters (major oil spills or industrial accidents)</td>
<td>33</td>
<td>39</td>
</tr>
<tr>
<td>5 Air Pollution</td>
<td>32</td>
<td>40</td>
</tr>
</tbody>
</table>

Table 7: Ireland's top five environmental issues (European Commission, 2008, p. 2)

Early Eurobarometer surveys (1970s and 1980s) illustrate a limited duty of care or value towards the environment within Irish society. This limited regard reflects ongoing wider social developments and in comparison to other European countries Ireland was a decade behind in terms of environmental awareness, legislation, and regulation. It has been argued that since the 1970s members of Irish governments have continued to overlook environmental protection in favour of economic growth (Flynn, 2007, p. 85). Policy style reflects that of the UK which emphasises the importance of reliable procedures, effective administration and discussion, although some were based on actual ‘Victorian-era legislation’ (Flynn, 2007, p. 87, Taylor, 2005). Following the establishment of the Irish Free State in 1922, there was little in the way of environmental law (Heritage legislation, sewage system for towns and cities) and it was over twenty years later that the naturalist
Robert Lloyd Praeger established the environmental group *An Taisce* (Flynn, 2007, p. 86). This lethargic approach to environmental legislation is synonymous with results from early reports. Possible explanations include Ireland’s low level of economic growth during this time period, with job creation carrying greater prioritisation. Also, the Irish landscape escaped the wrath of degradation caused by the Industrial Revolution and many Irish people felt that they had little to be worried about in terms of environmental damage (Share, 2007, p. 528).

Importantly, the surveys and political climate illustrate a particular anthropocentric and utilitarian approach to the natural environment which is reflected in the measurement of environmental attitudes and behaviours. Environmental education gained momentum across the developed world, partly as a result of environmental activism. The publication of Rachael Carson’s *Silent Spring* (1962) highlighted the detrimental impact of the insecticide DDT on the biophysical environment. Other issues, including the first and second oil crises (1973 and again 1979) which raised public awareness of society’s dependence on natural resources. Recommendations of environmental education at the United Nations conference in 1972 captured this growing environmental concern and reflected calls to educate society on how to be environmentally responsible. In 1975 the UNEP and the IEEP were established, generating further momentum behind efforts to increase environmental concerns globally (Palmer, 1998, p. 6).

In Ireland environmental education also gained momentum partly in response to growing environmental activism (*An Taisce*, 1980, 1982, Garner, 1979). Objections to an asbestos factory in Cork in 1970 and successful environmental protests in the late 1970s against a proposed nuclear power station at Carnsore in county Wexford, demonstrated emerging environmental activism (Flynn, 2007, p. 89). It is argued by Taylor (2005) that Ireland’s environmental and ecology debates do not just stem from the surge of protests but are fuelled by economic growth from Ireland’s EU membership in 1973, prompting change
in environmental regulation. He states that debates on environmental policy are to support economic growth and organise ‘consent around new definitions of the extent to which pollution can be justified’ (p. 150).

Many commentators on European environmental policy argue that since joining the EU Ireland’s environmental policy landscape has improved. In 1976 the Wildlife Act was passed and gave legislative protection to certain species and better management of hunting. Although revised in 1990, the 1977 Local Government Act gave an initial template for water pollution law in Ireland still used today (Flynn, 2007, p. 85-87). At the same time, there are considerable gaps in the implementation of these polices which have yet to be filled.

The more recent Eurobarometer surveys (2005, 2008) illustrate, for example, a rise in pro-environmental attitudes suggesting greater awareness, knowledge and concern for the natural environment. However, environmental practices have remained largely unchanged. During the ‘Celtic Tiger’ era in particular, changes in land use patterns, including new forms of housing and infrastructure development and the decline in agriculture increased the (sub)urbanisation of Irish society, leading to greater need for environmental legislation. The decline in agriculture, especially on small and medium-sized farms and the rise in heavily industrialised specialised, and technologically reliant agricultural practices, put excessive pressure on both land and natural resources (Viney, 1997, p. xi). The modernisation process of agriculture, fencing, fertilisers, drainage and the ‘reclamation’ of land has altered people’s relationship with the physical landscape consumed by ‘maintaining farm production’ (ibid, cf. Carson, 1962, p. 26). Were people more ruthless toward the natural environment, in regard to crops, use of land and land patterns? Has the gradual movement away from ‘working the land’ to (sub)urban living and working increased Irish people’s awareness of agricultural pollution and the implications of such? Or is it that the concept of the environment the surveys portray
does not adequately reflect, the daily lives of those surveyed? If asked about indigenous knowledge of the land would the outcomes have been more positive particularly in earlier surveys? This point will be discussed in Chapter Nine.

Many surveys depict utilitarian and/or rational concepts of the biophysical environment whereas notions of interconnectedness or sense of belonging are often absent. Within that context it is also interesting that in comparison to the average EU citizen, the average Irish citizen is more likely to link the natural environment with both quality of the life and what the next generation will inherit (European Commission, 2008). The 2008 Eurobarometer report shows that Irish people are more likely to associate the ‘environment’ with pollution in towns and cities, and are less likely to associate it with green and pleasant landscapes (p. 1). ¹⁹ However, it is the concept of the natural environment put forward by the surveys that influences such understandings. The environmental issues within the survey are global, with no attention paid to people’s thoughts toward such issues on a local level. These findings emphasise a singular concept as a problem (pollution) to be solved and a resource (to be exploited) more so than emotional or physical benefits. This narrow concept is emphasised in Table 8 as solutions of the environmental problems listed in recent Eurobarometer surveys revolve primarily around management and a particular understanding of ‘sustainable’ environmental behaviours.

¹⁹ See section 2.3 for an in-depth discussion.
<table>
<thead>
<tr>
<th>Have you done any of the following during the past month for environmental reasons?</th>
<th>Ireland</th>
<th>EU Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Separate most waste for recycling</td>
<td>70</td>
</tr>
<tr>
<td>2</td>
<td>Reduced the consumption of disposable items (for example, plastic bags, certain kind of packaging)</td>
<td>46</td>
</tr>
<tr>
<td>3</td>
<td>Cut down on energy consumption (for example, turning down air conditioning or heating, not leaving appliances on stand-by, buying energy saving light bulbs, buying energy efficient appliances)</td>
<td>44</td>
</tr>
<tr>
<td>4</td>
<td>Cut down your water consumption (for example not leaving water running when washing the dishes or taking a shower)</td>
<td>30</td>
</tr>
<tr>
<td>5</td>
<td>Chosen an environmentally friendly way of travelling (by foot, bicycle, public transport)</td>
<td>26</td>
</tr>
</tbody>
</table>

**Table 8: Ireland's top five environmental solutions (European Commission, 2008, p. 2)**

The more positive attitudinal findings of recent Eurobarometer surveys do not always translate into positive Irish environmental actions. As Kelly *et al.* (2004) illustrate, Irish people’s environmental behaviour does not necessarily match their rational pro-environmental attitudes. Their study finds that even with recycling facilities nearby, a fifth of Irish people report that they are not motivated to use them. Europeans, on the other hand, score higher stating they ‘always’ sort household waste in comparison to Irish respondents (Kelly *et al.*, 2004, p.7). The survey surmises that the Republic of Ireland holds an intermediate position in comparison to other European countries on environmental attitudes and behaviours (ibid). The modernisation of Irish society, including a decline in agriculture and the rise in heavily industrialised specialised which put excessive pressure on both land and natural resources could be responsible for this spread of a utilitarian approach to environmental issues, as opposed to a more intuitive one based on a close connection with the natural environment. However, the one-dimensional concept of the natural environment expressed through the surveys exemplifies rather narrow interpretations which this thesis argues also increasingly influence environmental education and what environmental attitudes and behaviours it
promotes (see also Chapter Three). This point will be discussed in more detail in Chapter Eight.

4.3 The development of primary school education in Ireland

4.3.1 Introduction

The evolution of Ireland’s modern primary education system is multi-faceted and has been subject to significant academic interest. Though a full history of formal education is beyond the scope of this thesis, detailing the changes within education and questioning whether greater conceptual diversity exists within the teaching of environmental education is crucial. It is argued that a brief analysis of key milestones in the development of the modern Irish education system overall is useful as is the dominant avenue for environmental education. The structure of the Irish education system at primary level begins from the age of four almost all children enrol in an eight year cycle that consists of junior infants, senior infants, and first to sixth classes. After primary education children then transfer to secondary or post-primary education. From the age of about twelve students enrol in firstly, a three-year Junior Cycle, sitting a Junior Certificate Examination at the end. This is followed by a two or a three year Senior Cycle (if the optional Transition Year is taken straight after the Junior Cycle) for students approximately aged between fifteen and eighteen years of age who finally sit a state Leaving Certificate Examination (Department of Education and Skills, 2013b).

The development of primary education starts with National Education in 1537 ‘when the Irish Parliament established parochial schools’ (Sadler, 1897, p. 211). The British national school system in Ireland dates from 1831 and the provision was secured by the Church from the mid-nineteenth century onwards (Lysaght, 1997, Cloonan, 1981). Until the 1970s, the school system maintained a largely state-financed but church-controlled mandate (Share et al., 2007, p. 205). Since then there have been turbulent relations between State and Church regarding primary education and throughout the 1970s, for
example, teachers and parents began to play a bigger role in the management of primary schools, challenging the Catholic Church’s control. Despite initial restrictions from government, and patrons of schools (local bishops) and industrial (dis)agreements, Ireland now features a number of different types of primary schools. During the years 1987-97, seventy-two new primary schools were approved by the Department of Education and Science including fifty-six gaelscoileanna (Irish-speaking schools), thirteen multi-denominational schools and one Muslim primary school (Share et al., 2007, p. 205). In 1999 the state decided to provide full funding for the development of primary schools and this removed the reliance on funds from the Church. This increased the number of multi-denominational schools in Ireland. For example, Educate Together Schools which are ‘parent initiated schools’, now have a total of sixty-five in the Republic of Ireland (Educate Together, 2013a, 2013b). Although there has been an increase in multi-denominational schools in recent years, approximately 90 per cent of all primary schools in Ireland are still under Catholic patronage (Department of Education and Skills, 2013c).

It is important to critically analyse a number of primary school curricula to ascertain the prioritisation (or not) of environmental education as a subject area. The development of different primary schools does not necessarily affect environmental education as only one primary school curriculum is administered by the government of Ireland. All primary schools in Ireland use this curriculum and differences surface with regard to educational approaches, methodologies, and delivery. However, a critical investigation of Irish primary curricula provides a greater understanding of the influences (if any) on the status of environmental education.

4.4 Primary school curricula (1872 – present): Status of environmental education

Environmental education per se did not always exist but gradually emerged from subject areas such as elementary science, object lessons, agriculture, nature study, rural science, and school gardening, which incorporated key elements of present-day environmental
education. Five primary school curricula, spanning some 140 years, provide a unique insight as to the teaching of environmental education through at times turbulent historic periods in Irish history (see Table 9 below).

<table>
<thead>
<tr>
<th>Curricula No.</th>
<th>Primary School Curriculum</th>
<th>Change in education</th>
<th>Wider historical events</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Payment by Results (1872-1899)</td>
<td>Aim to improve literacy and numeracy. Monetary reward for teachers based on pupils’ results</td>
<td>Based on British National School system (since 1831)</td>
</tr>
<tr>
<td>2</td>
<td>The Revised Programme (1900-1922)</td>
<td>Abolishment of previous practices in favour of child-centred progressive educational approach</td>
<td>Complete critical evaluation of previous curriculum (1896-1898)</td>
</tr>
<tr>
<td>3</td>
<td>National Programme for Primary Instruction (1922-1971)</td>
<td>Focus on Irish identity, culture, language and history</td>
<td>Introduction following foundation of Irish State</td>
</tr>
<tr>
<td>4</td>
<td>Curaclam Na Bunscoile (Primary School Curriculum) (1971-1999)</td>
<td>Progressive education, continuous process, and emphasis on being child-centred</td>
<td>Instigated by Ireland’s EU membership</td>
</tr>
<tr>
<td>5</td>
<td>Primary School Curriculum (1999-present)</td>
<td>Critical of previous curriculum for not being child-centred</td>
<td>Established in response to social, economic and political changes in Ireland</td>
</tr>
</tbody>
</table>

**Table 9: Timeline of primary school development**

1. **Payment by Results (1872-1899)**

Prior to the foundation of the Free State, the British National School system was the established educational structure in Ireland. The system dated from 1831 and aimed to improve both literacy and numeracy (Cloonan, 1981, p. 3). The introduction of Payment by Results (1872-1899) expected each National School to be examined annually and ‘result fees’ were given to teachers based on results from their pupils (Sadler, 1897, p.
Obligatory subjects for this curriculum were based around the ‘Three Rs’\(^{20}\) (this refers to reading, writing and arithmetic), to turn out children that could spell, calculate and write with accuracy (O’Connell, 1968). Other mandatory subjects included ‘spelling, grammar, and geography, agriculture in rural schools for boys and needlework in all girls’ schools’ (Sadler, 1897, p. 256). Optional subjects included ‘vocal music, drawing, classics, French, Irish, German, instrumental music, physical science, chemistry, hygiene, geometry, algebra, agriculture, dressmaking’ (ibid). The curriculum was deemed narrow, focusing on the ‘accumulation of a quantity of knowledge’ and the payment by results approach was both ‘mechanical and unimaginative’ (Hyland, 1971, p. 55, Lysaght, 1997, p. 441). With regard to the teaching of environmental education, a Commission of Inquiry in 1879 headed by the Earl of Belmore proposed changes to the curriculum including the replacement of agriculture with elementary science. This was a difficult transition as many teachers were untrained to deal with new additional subjects (Cloonan, 1981, p. 9, 10). Considering this lack of teacher knowledge, environmental education, or elementary science, tended to be taught at the discretion of the teacher. It was, however, the narrow and limited approach of the curriculum towards education overall that prompted change at the turn of the twentieth century.

2. **The Revised Programme (1900-1922)**

The disputed educational approach of the previous curriculum led to the introduction of the Revised Programme (1900-1922) for National Schools which was set up under the newly formed Department of Agricultural and Technical Instruction (Lysaght, 1997, p.441). The curriculum was established following a complete evaluation of the best national and international policy and practice carried out between the years 1896 and 1898 by the Commission on Manual and Practical Instruction (Walsh, 2004, p. 4). The curriculum was based on the philosophies of Pestalozzi and Froebel, with emphasis on

\(^{20}\) The three Rs’ is a phrase coined in circa 1807 by Sir William Curtis to describe the basic elements of a primary school curriculum. They include reading writing and arithmetic. Each of the words has a strong ‘R’ sound-hence the phrase ‘three R’s’ (Loughborough University, 2005).
children’s ‘comprehension of the underlying concepts of the various subjects’ (Cloonan, 1981, Hyland, 1975, p. 55). The previous system of ‘Payment by Results’ was abolished, as was the didactic and subject-driven style. The new system aimed to be more child-centred than its predecessor whereby subjects were not to be compartmentalised ‘but to be taught seamlessly in an integrated manner’ (Commissioners of National Education, 1901, cited in Walsh, 2004, p. 4). The Revised Programme included subjects such as manual instruction, drawing, object lessons and elementary science, singing, cookery, laundry and physical drill along with the already existing English and arithmetic (Walsh, 2004, p. 4, Hyland, 1975, p. 50). Interestingly, the subject of Irish was optional, as were French, Latin, Mathematics and Instrumental Music, all of which were not to hinder the teaching of the mandatory subjects (Hyland, 1975, p. 52). In 1904, minor changes were made to include a Kindergarten approach for infant classes which involved the biophysical environment as a source of stimulated education, with frequent changes between modules and ten minutes rest and play every hour (Walsh, 2004, p. 4). Though teachers who worked under the previous curriculum ‘had difficulty in adjusting their methods of teaching to the new approach’, the reaction to Revised Programme overall was positive (Hyland, 1975, p. 56)

Environmental education again did not exist per se, but the curriculum did place a higher value on education outdoors in the natural environment. Environmental education or ‘object lessons and elementary science’ had a set time allotted each week on the school timetable (Hyland, 1975, p. 51 and see Appendix L). Elementary science focused on scientific experiments indoors whereas object lessons comprised of first-hand education and experiences outdoors, on school excursions or in a ‘good school garden’ (ibid, p. 80). Teachers were encouraged to take classes out and visit local sites of historical interest and collect ‘natural objects’ for a class museum (Lysaght, 1997, p.441, ibid). The child-centred and humanistic educational approaches that prevailed during this particular
period prior to Irish Independence provided a more cohesive balance between informal and formal environmental education than the previous curriculum.

For a predominantly rural country under colonial rule, the apparent balance between informal and formal approaches to (environmental) education for children seems surprising. The heuristic method of teaching and the philosophy that underpinned the curriculum was to encourage ‘learning based on experience’ whereby pupils educated themselves with the guidance and support of a teacher (Hyland, 1975, p. 55). Unlike the previous curriculum, there was now an emphasis on learner relevancy and involved children in their own education. It is important to note that the successful delivery of object lessons and elementary science was hindered by didactic teaching habits from the previous curriculum, a lack of knowledge and adequate teacher training. However, it was reported that teacher training did popularise the subject of elementary science in the classroom but that object lessons continued to be taught at the discretion of the teacher and not in any meaningful or substantial manner (Hyland, 1975, p. 82-85).

3. National Programme for Primary Instruction (1922-1971)

Following the foundation of the Irish Free State in 1922, the primary school curriculum was reassessed and became the National Programme for Primary Instruction (1922-1971). In 1922 the Irish National Teachers’ Organisation (INTO) proposed the abolishment of subjects including drawing, elementary science, hygiene, needlework and nature study as required subjects (Lysaght, 1997, p. 441). It was argued that the previous curriculum had too many obligatory subjects; the Irish language carried a subsidiary role and that overall it was ‘out of harmony with national ideas and requirements’ (Irish Times, 1922, National Programme of Primary Instruction, 1922, p. 3). In fact, priority was given to the ‘mastery of the Irish language’ as the main ‘goal of education policy’ which reflected the dominant nationalist ethos of the time (Coolahan, 1981, cited in Lysaght, 1997, p. 441).
Environmental education was now under the heading of ‘additional subjects’, for example, elementary science; water, air, nature study; outdoor observations, seasons, plants, insects, and study of local water sources, rural science, and school gardening. Other subjects included, cultivation, plant life, seeds, manuring, propagation, and management of a school garden. Additional guidelines and resources were also available for teachers (National Programme of Primary Instruction, 1922, Rennie, 1923). Though promising for environmental education, the curriculum was subsequently revised in 1934 to state that ‘nature study or rural science’ was now ‘optional’ in all schools (Revised Programme of Primary Instruction 1934, p. 3). Unlike in the previous Revised Programme, these subjects were not only ‘additional’ subjects, demoted on the syllabus, but also optional and marginalised within twelve years (National Programme of Primary Instruction, 1922, p. 17, ibid). Environmental education was not a priority in the primary curriculum as perhaps an interest in flora and fauna was not deemed specifically ‘Irish’. The Gaelic League and the Free State primary schools advocated a largely anthropocentric approach to Irish heritage that emphasised history, antiquities, folklore, games, music and dancing, and largely ignored the natural environment (as well as other issues such as the built urban environment). The subject of nature studies was associated with the Ascendancy in scientific associations, field clubs, the Protestant gentry and the professional middle class, which were all largely rejected by the architects of the Free State. There was a sense of urgency in learning the Irish language ‘and to foster an intensely nationalistic sense of culture and identity’ which did not include or entertain environmental education (Lysaght, 1997, p. 441).

The obvious downgrading of environmental education (elementary science, nature study, rural science and school gardening) following Irish Independence is striking. Under colonial rule teachers were encouraged to take their pupils outdoors into the biophysical environment, even if it did not occur on regular basis. However, by 1922 such lessons
were associated with times past and the future prioritised Irish cultural identity only. Perhaps the architect of the post-Independence Irish education system also assumed that as a largely rural landscape, outdoor education occurred naturally or rather ‘by osmosis’, hence the relegation of the subject. Either way, this demotion marks a poignant juncture for environmental education within formal education that is reticent right up to present day.


During the latter half of the 1960s, the Inspectorate of the Department of Education put together a draft curriculum which was introduced in 1971 after some piloting and revisions. It was partly instigated by a need for primary education to be more ‘a continuous process […] that gradually changes as the child grows’, demanding practical changes within the classroom (UNESCO, 1961 cited in Curaclam na Bunscoile Teachers Handbook Part 1, 1971, p. 13). Classroom changes included a move from curriculum-centred to child-centred and group teaching. It also focused on reducing pupil to teacher ratios, an introduction of reference libraries and new furniture in older classrooms (ibid, p. 16, 17). Newly built schools incorporated bigger classrooms, modern furniture, more light, better heating, and improved toilet facilities (ibid).

The curriculum also rolled out against the backdrop of broader economical and political changes, including a move from ‘education as a social expenditure to one of investment in the individual and society as a whole’ (Walsh, 2004, pg. 7). During this period, Ireland experienced a surge in economic growth which fostered investment and interest in education. Ireland’s membership of the European Economic Community (EEC) in 1973 encouraged interactions with international organisations such as UN, UNESCO, and the OECD. Now competing on an international stage, educating citizens to collaborate and work together seemed imperative. In doing so, the Curaclam na Bunscoile addressed the specific aim to remedy apparent flaws within the National Programme for Primary
Instruction (1922-1971). Unlike the didactic and rational educational approach of the previous curriculum, Curaclam na Bunscoile aimed to be child-centred, with subjects to be taught in a seamless and integrated manner. It was acknowledged that in the previous curriculum:

Education was ‘curriculum centred’ rather than ‘child centred’, and the teacher’s function in many cases, was that of a medium through whom knowledge was merely transferred to his pupils

(Curaclam na Bunscoile Teachers Handbook Part 1, 1971, p. 15)

This new curriculum was bilingual and published in two separate books. According to the Teacher’s Handbook Part 2, environmental education was part of social and environmental studies. Social studies incorporated history and civics whilst environmental studies included geography and elementary science (1971, p. 11). The syllabus for environmental studies integrated the human environment, animal life, plant life, nature walks (school garden or playground), and natural phenomena (space, water, heat and cold, thermometer, rain gauge, and wind). In addition, part of the syllabus was language development and recording aspects of nature on expeditions with older classes (first hand education of plants, animals, and habitats) and elementary science (ibid, p. 19-38, 39-74). Curaclam na Bunscoile adopted an integrated approach to a number of subject areas, which suggests a prioritisation and full incorporation of environmental education in a child’s formal education. The divisions and subdivisions of the subject appeared organised and structured with a child-centred approach.

However, it can be argued that such changes regarding environmental education proved unsuccessful. In 1987 An Taisce published a report entitled Environmental Education in Ireland directed at the Curaclam na Bunscoile and its approaches to environmental education at primary level. However, in reality, environmental education was
intermittent. This was due to lack of firsthand experience, knowledge, and confidence from teachers and children, in addition to limiting ‘skills, methodology, discipline, insurance and administrative arrangements’ to leave the classroom and go outdoors (An Taisce, p. 5). It stated that environmental education ‘as a practical unifying approach, is not recognised within the formal education system’, sixteen years after the curriculum was introduced (ibid, p. 10). In the higher age classes focus was placed more on the Three R’s (reading, writing and arithmetic) in preparation for second level education (An Taisce, 1987, p. 10). The report recommended a teamteaching approach to environmental education whereby staff pool resources. It suggested collaboration or ‘teaching aid’ (support services from retired or unemployed teachers), parents and community participation (local expertise, excursions), in addition to ‘in-service education through teacher’s centres’ to counteract this issue (ibid, p. 5).

It is important to note that during this period there was no national standard for teaching environmental education of primary level (National Programme for Primary Instruction, 1922-1971). Environmental education remained a marginal subject as priority was placed on the Irish language, culture, and heritage. In light of An Taisce’s (1987) report, however, such environmental education at primary level would have benefited teachers’ confidence and their general knowledge base when working in the parameters of their profession. The Teacher Handbooks clearly did little to provide such a skill set. Once again, this left environmental education to be taught at the discretion of a teacher. That said, the Taisce Journal highlights a number of examples from teachers and also external initiatives that encouraged a passion, an interest, and sense of fun for the subject at primary school (Garner, 1979, p. 27, Peters, 1979, p. 28, An Taisce, 1980, p. 10, An Taisce, 1982, p. 13). Such innovations, however, were not mandatory, resulting in environmental education occupying a rather precarious role within formal education.
5. The Primary School Curriculum (1999-present)

The integration of environmental education across a number of subject areas continued with the advent of a new curriculum. The introduction of a new Primary School Curriculum (1999-present) reflects another set of educational, economic, social, and cultural developments within Irish society. This is associated with the ‘Celtic Tiger’, an era of rapid and unprecedented economic growth. Following the introduction of the curriculum, there has been increasing growth in the number of pupils enrolling in primary education. Some estimate that the number of children in formal education is set to increase by 10,000 annually over the next five years (Flynn, 2011). The Department of Education and Skills (2013a) forecast ‘an increase of over 45,050 primary pupils by the start of the 2017/18 school year’. In addition, cuts in educational funding that result in an increase of class size but decrease teacher numbers puts pressure on the new primary curriculum to not only adapt but also to be flexible to growing demands (INTO, 2012).

The current Primary School Curriculum was founded on its predecessor, the Curaclam na Bunscoile (1971), and continues to emphasise a child-centred approach to education (NCCA, 2005, p. 16). It includes six curriculum areas language, mathematics, social, environmental and scientific education (SESE), arts education, physical education, and social, personal and health education (SPHE) (Science: SESE Teacher Guidelines, 1999, p. 2). When it was first introduced, all primary teachers took part in a national programme of in-service training to support this transition, which was completed in 2006/2007 (Curriculum online, 2008). Unlike the previous curriculum, environmental education amalgamates with not one particular subject area but two interdisciplinary curricular strands SPHE and SESE. Within SESE it aims to:
[E]nhance children’s knowledge and understanding of themselves and the world in which they live... [SESE] fosters an appreciation of the interrelationships of all living things and their environments and encourages children to become active agents in the conservation of environments for future generations

(Science: SESE, 1999, p. 3–4)

SESE promotes humanistic approaches to environmental education and encourages tuition both inside and outside the classroom. On reviewing the *Science SESE Teacher Guidelines* (1999), instructions for teachers to initiate children’s observations of the biophysical environment for all primary classes, includes exercises on observing animals, plants and insects (ibid, p. 57). The guidelines are clear and concise and contain practical advice including ‘approaches to outdoor exploration and investigation’, which help teachers prepare for work outdoors (ibid, p. 58). Such ancillary information supports and guides them through various hands-on education teaching practices. A report compiled by the National Council for Curriculum Assessment (NCCA) entitled *Science in Primary Schools, Phase 1 Final Report* (2008), illustrates the importance and positive effects of conducting lessons outside the classroom and organising science trips for students. However, the report surmises that out of the 906 accounts of school science, only 5 per cent showed pupils outdoors compared to 86 per cent showing activities in the classroom (2008, p. 71).

There are a number of factors that systematically hinder environmental education in Ireland. Recent reports emphasise the need to ‘deload’ this particular curriculum (NCCA, 2010a, 2010b). Undoubtedly, the task of covering twenty-three books totalling 2,650 pages, six separate curriculum areas that comprise of eleven subjects can overwhelm teachers and committees (NCCA, 2010a, p. 5, 6, NCCA, 2010b, p. 10). The curriculum is overloaded with literature, which in turn puts pressure on teachers to complete lessons for each academic year. These curricular pressures and time constraints are an inhibiting factor to learning outside as depicted by the earlier science report.
Environmental education is subject to curricular pressures, time constraints, and ultimately, continues to be taught at the teacher’s discretion. In acknowledgment of these concerns, ‘glance cards’ were drawn up as part of an initiative for ‘re-presenting the content objectives of a particular strand/strand unit on one card’ to highlight ‘continuity of content across class levels’ (NCCA, 2010a, p. 6). These cards offer a short-term strategy for teachers to cope with their workload and the time constraints. The programme was administered in three phases during the academic year of 2009-10. It focused on a number of curricular areas, including science, mathematics, Gaeilge (Irish) and English, whereby the glance cards helped to disseminate the core objectives. The cards did not replace the use of curricular documentation but acted as an additional tool intended to help navigate and manage the distribution of different curricula areas. Teacher feedback from the science glance cards in particular, suggests that they were seen as beneficial and providing support (NCCA, 2010a, p. 6-7, 44). However, it is important to note that the programme did not address the issue of curriculum overload or instigate a possible reassessment.

Environmental education is still not a priority subject within primary education. The history of environmental education illustrates a range of inhibiting factors such as; political and ideological barriers following Independence, teacher knowledge and confidence, time constraints, curricular pressures and possibly insurance, and health and safety issues. Contemporary (environmental) education in Ireland remains subject to many of these pressures and barriers.

Table 10 illustrates this changing nature and formalisation (standardisation of measurement and teaching outcomes) of environmental education within primary education in Ireland.
Curricula number | Primary School Curriculum | Environmental education
---|---|---
1 | Payment by Results (1872-1899) | Elementary science encouraged as individual subject but not widely in practice
2 | The Revised Programme (1900-1922) | Elementary science and object lessons-stand alone subject, timetabled, structured but not regular
3 | National Programme for Primary Instruction (1922-1971) | Elementary science, nature study, rural science and school gardening was marginalised and then became optional. Focus on building Irish state; language, culture identity
4 | Curaclam na Bunscoile (Primary School Curriculum) (1971-1999) | Social and Environmental studies: within a subject area. Interdisciplinary, taught at teacher discretion due to lack of knowledge, support and training
5 | The Primary School Curriculum (1999-present) | SESE interdisciplinary and spread across various subject areas. Limited by education structure, time constraints, curricula pressures, teacher knowledge and confidence, health and safety issues

Table 10: The formalisation of environmental education

This said, there are some grounds for optimism. Outsourced environmental education programmes are available and potentially compensate for the marginalisation of the subject in schools. The success of any such intervention crucially depends on its ability to integrate environmental education into the primary curriculum. In doing so, this questions the purpose of the sector and what it hopes to achieve. Expectations and levels of responsibility are high considering the subsidiary position of the subject across numerous primary curricula. Nevertheless, an alternative environmental education structure to that of curricula could better develop the subject in school on a more regular basis. But to what extent is the sector a success? Does it provide for children the opportunity to really engage with their natural surroundings on a regular basis? The
following section provides a critical examination of environmental education programmes chosen for this research.

4.5 Environmental education programmes in contemporary Ireland

4.5.1 Introduction

Today environmental education programmes in Ireland provide educational tools and practical resources to both the general public and particularly children of a primary school age. Many complement curricular strands, subject areas and ongoing environmental work/initiatives in schools. The programmes are not a compulsory part of primary education but are outsourced by a school. Freelance environmental educators are invited to work with a class(es) for half a day, a full day, several days over a number of weeks or months, or throughout the academic year. Although environmental educators are often self-employed, the majority work with a particular programme or organisation. For the purpose of this research programmes are classified under the headings of 1) state-funded, 2) semi-state funded or 3) NGO-led.21 It is clear that the design structure of programmes is tailored to attract and accommodate formal education. Considering that environmental education is marginalised in the primary school curriculum, can outsourced programmes really reverse this trend?

4.5.2 State-funded environmental education programme

This author worked as an Education Officer with a state-funded environmental education programme, National Parks and Wildlife Service, in three of its six education centres across Ireland. This role involved the delivery of environmental programmes to the general public and interest groups, including primary, secondary, and third level students (NPWS, 2010). A primary school makes an appointment to visit a centre and the environmental educator can complement lessons ongoing in the school, or may provide a

21 See section 1.4 for classification of programmes.
day out at the end of the school year. On the other hand, an Education Officer can visit the school as part of outreach and deliver the programme in the school environment. Both the teacher and Education Officer liaise prior to the visitation to discuss the content of the session, what the class would like learn about, or to reiterate areas of the curriculum already covered (or to be covered) at school.

The environmental education programmes are free to primary schools and promote environmental awareness and appreciation through a range of activities and games. Tailored to each class or group need, games often include treasure hunts, bug hunts, scavenger hunts or, depending on the weather, quizzes, arts and crafts, and PowerPoint presentations explaining different insects, mammals, flora, and habitats. Nature walks are also available and students use specific equipment (binoculars and bug jars to collect insects) which complement information worksheets. Each environmental education programme supports the aims and objectives of subject areas such as SESE and SPHE of the primary school curriculum. The design of programmes suits the structure of primary education and its underlying pedagogical approaches (see section 3.3.2). The programme is often structured with that in mind, but the delivery focuses on active and collaborative participation with children. Often time constraints or other issues such as weather, inadequate outdoor clothing, and negative teacher input shortens children’s experience, particularly outdoors. The frequency of such visitations is also dependent on each school as it is not mandatory and is subject to the interest of schools.

4.5.3 Semi-state environmental education programme

A semi-state funded environmental education programme, the Heritage in Schools Scheme, is offered by the Heritage Council, a semi-state organisation that pursues conservation and heritage goals, but shares similar characteristics to that of the state-funded programme. However, the aim is slightly different, as it generates interest and appreciation for an Irish heritage perspective. This comprises of over 165 specialists nationwide who cover a wide range of heritage programmes to include, natural heritage
(bats, agriculture, seals, birds, ecology) and the built environment (architecture, archaeology, crafts, traditions, oral traditions) (The Heritage Council, 2012). A specialist will visit and engage with children on any aspect of the natural environment at the request of a primary school. The administration and structure of the programme is slightly different to the state-funded programme. There is no education centre per se as more often educators visit the particular school to deliver a programme in person. A school can opt for a half day or full day session or be part of the ‘5 series visit’ with a specific educators. With the five series visit, the educator visits the school five times over a period of a week or five times throughout the school year. Four of the visits are funded by the primary school while the fifth is funded by the organisation (The Heritage Council, 2008). The visitations, although not free, do offer a monetary incentive for schools to facilitate a number of visits as the fifth visit is paid by organisation. Similar to the state-funded programme, environmental education programmes within the organisation advocate that they work with the primary school curriculum, the objectives of SESE, and can provide additional educational tools and resources for teachers. However, the number of visits by these semi-state funded programmes highlights a need for continuity to avail of expert knowledge, but similar to the state-funded programme it is ultimately, up to the school to sign up.

4.5.4 NGO - led environmental education programme

NGOs have long been associated with educating individuals about the natural environment and to develop ‘a broad philosophy of the world ethic for living sustainably’ (IUCN/UNEP/WWF, 1991, p. 14). In Ireland environmental education is often a strand within an overall environmental NGO, and is subject to not only funding but also competes with other ongoing initiatives to gain public interest and increase numbers of supporters.

This author volunteers with an NGO-led environmental education programme to support the organisation’s environmental education efforts. As an education provider, Burrenbeo
Trust delivers a programme whose content is specific to one particular region location, namely County Clare and County Galway. The course runs for twenty weeks with class(es) in a number of different schools every year which integrate with SESE curricular areas of the primary education (Burrenbeo Trust, 2013). The course is structured by modules which focus on one aspect of heritage whether it is archaeology, history, flora and fauna, landscape, and culture of the area. Each module is delivered by an educator who designs their particular programme to be appropriate and relevant to the learner. Revision plays an integral part in the overall programme and additional educational tools for each class, quizzes, and newsletters are encouraged between modules. At the end of the course all schools that partake in the programme have a field trip and a conferring as heritage experts on ‘graduation day’. The programme is extensive and specific in its objectives to educate on several strands of historical, cultural and landscape heritage.

What is unique about this programme is that unlike the state and semi-state funded programmes, this course engages with each school over a longer period of time providing regular updates, quizzes, and newsletters that help educate both teachers and students. However, as an NGO-led programme, the course is subject to funding which can restrict allowances for tools or materials, and other costs including travel expenses for the educators. Similar to state and semi-state funded programmes, the NGO-led environmental education programme is dependent on schools signing up and registering with the service. The overall impact and effectiveness of the programmes are clearly influenced by a number of extenuating issues which prevent regular outdoor environmental education programmes working with primary schools throughout the academic year.

The Green Schools (GS) environmental education programme, through an awards scheme, promotes an environmental management plan that consists of a number of
themes and steps which must be completed to earn a Green-Flag for the participating school. Popular with primary schools it runs throughout the academic year and lasts for several years (Green Schools, 2013). This author acknowledges the high take-up of the GS programme both nationally, and as Eco-schools internationally. Nevertheless, there isn’t an explicit focus on GS. The main focus is on environmental education more generally (rather than individual programmes) and teachers’, educators’ and families’ experiences of environmental education.

4.6 Conclusion

Findings from this chapter reveal that in Ireland environmental education is very much influenced by changes in the structure of primary school curricula. This often coincides with wider developments regarding social, economic and political conditions. Within that context of changes post-WWII, the Eurobarometer surveys capture the ascent of a distinct - utilitarian notion of the natural environment. At the same time, people’s emotional connections or indigenous environmental knowledge continue to be overlooked. This chapter shows how the measurement of public opinion revolves around (global) environmental concerns, pollution, climate change, energy consumption, use of resources, and rate of personal environmental worries.

Environmental education in practice carries a similar theme as, within curricula and outsourced programmes, it appears intermittent experience – distant and frequently confined to the indoors. This suggests that children learn about the natural environment with limited access and firsthand experiences in their natural environment.

An extensive examination of primary school curricula (1892-present) presented in this chapter illustrates environmental education to be continually marginalised. However, it is also important to acknowledge the resilience of the subject across different curricula over a 140 year(s) period. But what particular educational approaches and understandings of ‘the environment’ transfers from teacher to student when delivering environmental...
education? The formalisation of environmental education from a standalone subject to an interdisciplinary and cross-curricular one did little to increase the status of environmental education within primary education policy and practice. Furthermore, investigations of the current curriculum show that due to curricular pressures there is limited time available for environmental education. The introduction of ‘glance cards’ aimed to help teachers cope with pressures, time constraints, and the delivery of the various subjects but do not engage children in environmental education in any meaningful way.

On the other hand, the co-existence of state and semi-state funded and NGO-led programmes illustrates a wide variety of environmental education initiatives to engage children with their natural surroundings. The programmes highlight flexibility to suit the needs of a teacher but the monetary incentives (semi-state) and focus on curricular areas (state-funded, NGO-led) means they are susceptible to being viewed as something fun more so than educational.

So how effective is environmental education? Figure 4 illustrates the position of environmental education in primary education and the (potential) impact of broader developing factors. This investigation reveals the current predicaments within the field and identifies a number of issues that are clearly overlooked. It not only questions the purpose and underlying concepts of environmental education but also the limitations on its overall impact and (in)effectiveness.
It is at this juncture that the analysis of semi-structured interviews with environmental educators, school staff, parents and children in Ireland provide the opportunity to gain a deeper understanding of the impacts of complex relations between environmental education and formal education but also the concepts of education and of ‘the environment’ that underpin environmental education generally. While a critical examination of secondary and some primary data (author’s work experience in the field) reveal thought-provoking patterns as to the impact of environmental education long-term, a more informative picture can emerge from those actively involved in the teaching and learning of environmental education. In doing so the following chapter - Chapter Five - draws on primary interview data collected between 2010 and 2011 to assess the (in)effectiveness of environmental education in practice, as expressed by those actively involved as teachers and learners, or both.
Chapter 5
Environmental education in practice: Capturing the voices of teachers and learners

5.1 Introduction

In Chapter Four it was suggested that environmental education plays an intermittent role in a child’s (environmental) education at primary school level. This chapter – Chapter Five - reveals crucial evidence that systematically questions the underlying purpose (and potential success) of outsourced environmental education programmes in Ireland, focusing in particular on concepts of education and of the natural environment that underpin environmental education programmes as described by interviewees. In doing so, the perceptions, concerns and experiences of those actively involved in teaching and learning can be at least partially unearthed. This chapter empirically investigates similarities but also contradictions regarding the relationship between environmental education programmes and formal education thereby trying to ascertain whether and to what extent the structure of formal education helps or hinders environmental educators’ efforts to (re)connect children with the natural environment.

This chapter – Chapter Five – and the following chapters – Chapter Six and Chapter Seven draw on the theoretical framework (Chapter Three) to guide the analysis of semi-structured interviews and present the empirical findings of this research. An in-depth discussion and analysis of these findings, detailed conclusions and policy recommendations are presented in Chapters Eight and Chapter Nine. Section 5.2 analyses outsourced environmental education programmes that work with primary schools as

22 See section 1.5 for interview technique with child participants. This research uses content-related analysis which focuses on the characteristics of language with attention on not only the content but also on the contextual meaning of the text in order to ascertain what it is people/interviewees are talking about. The author of this research critically examines all transcripts while referring to written memos that document preliminary ideas as well as regularly listening to the recordings of each interview.
described by environmental educators (EE), school staff (SS), parents and children (F). Focusing on particular state-funded, semi-state funded and NGO-led programmes chosen for this research, the section asks to what extent are these outsourced programmes an integral part of a child’s environmental education? This draws attention to the relationship between the environmental education sector and formal education, in particular the differing opinions amongst interviewees as to what environmental education ought to or can achieve in the context of mainstream education. This in turn raises interesting questions as to whether different types of environmental education programmes can co-exist and whether certain endeavours are more ‘successful’ than others. **Section 5.3** examines the Green Schools (GS) programme which received ample attention from all three groups of interviewees. Interviewees highlight the established nature of the programme in primary schools, emphasising its role as a prominent source of environmental education for children. On the other hand, data also suggests that contrasting and contradictory views of the programme exist regarding its underlying approach to environmental education as well as the key concepts that underpin it. **Section 5.4** presents the chapter’s key findings including a summary of the dominant trends and (at times) diametrically opposed strands of environmental education that coexist within the Irish education system.

**5.2 Special branch: Environmental education programmes in Ireland**

All environmental educators interviewed for this research stated that bringing children outdoors is a significant and central part of environmental education. The majority found that direct contact for children in the natural environment provides not only educational but also mental, physical and social benefits for children. Being outside helps children to develop a connection with the natural environment, which according to many plays a crucial role in the development of sustainable environmental attitudes and behaviours.

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23 Environmental education programmes were chosen for this research project under a number of headings; outdoor experiential educational approaches, recommendations from environmental educators, and the author’s experience in environmental education. See section 1.5.1.
into adulthood. One environmental educator who works with the state-funded environmental education programme stated that she invites schools to visit an education centre. In doing so, she believes children have a better opportunity to learn outside the school environment and in the natural environment. As part of this particular programme, children take part in various games, treasure hunts, bug hunts, and scavenger hunts to build environmental awareness and appreciation. She argued that children remember and learn more through firsthand contact in the outdoors than they would from a textbook.

"I think if at all possible bring them out [...] I try and get them into the park because even if it’s raining in the park I try to get the kids out, and I think they actually gain more, they learn more, and they enjoy it when they are out either collecting the insects or doing the pond dipping, they’re not looking at a picture"

(EE1, 28th September 2009)

A colleague in the same organisation described how programmes are structured to cater for different age groups and needs so that activities such as, scavenger and treasure hunts are both learner relevant and enjoyable for children. This particular education centre is fully booked throughout the academic year suggesting it is a valuable resource for schools in the teaching of environmental education. The following quote describes how the centre organises each visit and the variety of programmes that are available and divided into particular themes.

"Well it’s very much nature awareness [...] for the primary school age group we came up with themed days and [...] special day for infants [...] focuses on plants [...] bugs [...] wildlife and wilderness [...] habitats"

(EE17, 18th February 2010)

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24 This programme aims to generate environmental awareness and appreciation and works with primary schools. See section 4.4.2 for more detail.

25 However, as discussed in Chapter Four it could also imply difficulties in schools to teach it on a regular basis, for example, time constraints, curricular pressures, health and safety and teacher knowledge/confidence.
The described themed days in the previous quote focus on a different species, plants, animals and habitats/ecosystems. Children learn through group work, competition and individual efforts to complete games or activities. The programme aims to enhance and make more vivid children’s understandings of the natural environment through play and firsthand contact in the natural environment. At the end of the day, there is an expectation that the children are better informed as to the various insects’, flora and fauna. From the author’s experience working with the programme, this also coincides with making them familiar with other aspects of the natural world including pressing conservation issues such as the protection of biodiversity.

A similar attitude emerges from educators working with the semi-state funded environmental education programme. Following registration by a school an educator visits the school, offering a programme based on their own interests, for example, marine life, flora and fauna, archaeology, history, or geography. One educator stated that the main educational objective is for children to be outdoors. He saw the natural environment as a blank canvas for education, with direct contact proving superior to the indoor, mediated environmental education experiences.

[O]ne thing that is to take the children out of the classroom cause that is really where it is at. You can do lots of desk studies you can do lots of studies on the computer and you can go down the Amazon or up the wherever but there is no comparison between going out even in their own yard with a worm or a snail in their hand, that is a first rate experience

(EE8, 18th November 2009)

The environmental educators from both state and semi-state programmes shared similar ideas as to the purpose of environmental education, stressing the need for children to immerse themselves in the natural environment. Many also strive to personalise the

26 Programme aims to generate an appreciation for Irish heritage; educators cover a wide range of heritage topics on natural heritage. See section 4.4.3.
experience, demonstrating a desire to communicate and instil an interest of the natural world in children. One educator from the semi-state programme, for example, focuses on being learner relevant and encourages children to question the natural world around them. Like the previous quote, this educator advocated an informal humanistic educational approach to develop environmental awareness.

I think if you actually see a plant, if you actually look at a plant it’s growing in the ground, and look at it in a book it’s completely different you know, it’s better actually to see it first hand, and know and explain to them [children] what kind of ground you would find that on, will you find it under a hedge? Or in the middle of a field?

(EE11, 1st February 2010)

The educational approach takes time in planning and preparation. From the same programme, one environmental educator is organised for all weather eventualities preparing for both indoor (classroom based) and outdoor activities (school grounds, areas of local natural interest). She includes sweep nets for butterflies, pooters to collect insects and binoculars for bird watching during outdoor activities. If the group have to remain indoors, she has bird and animal toys, props for food web games or predator and prey games.27 The quote below includes a comment regarding feedback from students which also highlights the importance of student opinion to the work of some educators.

[T]hey simply couldn’t go outside and one visit I brought clay and sand and worms so we made wormeries and one of the kids they are great when they praise you ‘this is the best day ever!’ cause you like to work with muck in school

(EE9, 27th January 2010)

27 Commonly used in environmental education, these games are group activities which require animation, creativity and imagination to educate children about different species/habitats/ecosystems in the biophysical environment.
The extensive planning of a programme is not an isolated case. Within the same scheme and prior to a school visit, another educator fills large containers with insects. In this way, during a preliminary chat and introduction the children are aware of what they might see and find when outdoors. She also provides pooters and bug jars to store insects and ‘bug restrainers’ which help confine some insects and spiders to one area. Although the visit begins indoors, she uses it as an opportunity for the children to understand what they are going to be doing once they are outside. Her approach is informal, and helps children feel confident when encountering different species with a helping hand from various pieces of equipment. She plans, structures and prepares her programme for firsthand contact with emphasis on the use of the senses. The quote shows her efforts are relevant and educational for the learner while also being a source of fun.

I have four big containers and I fill them up […] I will always say to the teachers that the main thing is go outside […] I have a little set of equipment a tray and pooters and magnifying glasses and […] ‘bug restrainers’ […] they always seem to enjoy it and get into it even the ones at the start are screaming

(EE13, 10th February 2010)

One educator described the NGO-led environmental education programme as an intensive course that aims to inform ‘the community locally, nationally and beyond’ (EE18, 23rd July, 2010). Divided into a number of modules the programme includes archaeology, history, flora and fauna, landscape and culture. As previously discussed, this programme consists of approximately twenty weeks during the academic year.²⁸ Similar to state and semi-state programmes educators often personalise the content and delivery of environmental education. On several occasions the author of this research co-ordinated with the flora and fauna module which is comprised of an indoor presentation followed by explorative games that reinforce information outside of the classroom. One

²⁸ See section 4.4.4 for more detail.
interviewee found the course overall to be ‘very interactive, there are fieldtrips I think they [children] really get a great kick out of it’ (EE18, 23\textsuperscript{rd} July 2010). However, as an NGO – led the programme, it is subject to funding and ‘no matter how well you organise it, you have costs, school buses, tutors fees and travel expenses’ (ibid). That said, another educator found the format and length gives greater opportunity for students to absorb and remember what they learn. In addition, each visiting educator summarises what was covered in recent weeks which improves childrens understandings.

[S]o you have a constant sort of revision […] which puts it into the kids heads very very well and believe me it really does go in […] I mean these kids go and ask them they really know their stuff you know it’s phenomenal

(EE10, 27\textsuperscript{th} January 2010)

Environmental educators prioritised that environmental education occurs outdoors and encourage a variety of educational approaches to fully engage children. All of them promoted a humanistic educational approach where children learn through direct experiences in the natural environment. Emphasis was placed on enjoyment and exploration to help develop a sense of connectedness with their natural surroundings. One educator remarked ‘I don’t expect them to produce a report, I just want them to go out close their eyes and listen’, suggesting that specific educational outcomes are not a priority either (EE9, 27\textsuperscript{th} January 2010). Interestingly, educators did not mention links to the curriculum or curricular subject areas (SESE, SPHE). This suggests a possible ambivalence toward strands of the curriculum or to educational objectives within the education system.

In fact, the majority of educators argued that the structure of formal education hampers environmental education and its long-term impact. An environmental educator, a lecturer at a teacher training college, criticised formal education as being too preoccupied with ‘fulfilling targets and ticking off boxes’ leaving little room for children to absorb
environmental information or knowledge (EE5, 22nd October 2009). He stated that time constraints and pressures within the system prevent regular outdoor environmental education. He argued that children need to learn at their own pace as: ‘they are like sponges they need time, sponges for the water to penetrate’ (ibid). He found that environmental education is unique in that it provides different ways of learning for children yet it is not prioritised in current primary education.

[M]aybe there isn’t enough emphasis on love and feeling and senses in education and I think if there was more environmental education there would be more education in the use of the senses […] in feelings rather than fulfilling targets and ticking off boxes that's not an education really is it?

(EE6, 27th October 2009)

Another educator criticised the teaching tools and resources for environmental education in primary schools, finding them to be inadequate and not taught in an authentic way. He stated that any environmental education that comprises of posters, booklets and documentaries cannot compare with, or replace the value of direct contact in the natural world. In his opinion, environmental education is about firsthand encounters and he questioned the long-term credibility of the indoor based approaches within formal education. The quote also suggests that formal education does not or cannot provide what educators describe as meaningful environmental education.

[P]osters and booklets and all sorts of documentary been produced […] it’s floating around there all the time, if you go into any classroom there are posters […] but to a very large extent it’s at the cost of encountering these things […] you are not […] taken over emotionally unless you had the experience […] I mean the experience can come first […] all the colours of the posters or the videos and stuff that you have in the classroom is no substitute

(EE6, 27th October 2009)
He also acknowledged that outdoor environmental education is part of the primary curriculum however; factors such as curricular pressures, time constraints and insurance prevent outdoor environmental education occurring on a regular basis.

Well you look at the curriculum, the wording may be there a couple of sentences are maybe there to cover themselves you know, it would be nice to get the kids out into the woods but then it translates into practice you know, if the curriculum doesn’t allow the time, if the costs of hiring buses, insurance all this sort of thing

(ibid)

Another educator expressed the same opinion, particularly in relation to the size of the curriculum. He remarked that it is overloaded which not only puts pressure on teachers to finish each year, but also that it diminishes the quality of education for children generally.

[T]he curriculum is overloaded, so many subjects in it, I mean less is more but what we have now is more is less […] expected to cover all of that and give them a little bit of everything, a little bit about everything, a little bit, but nothing substantial

(EE5, 22nd October 2009)

The negative influences an overloaded and pressurised curriculum can have on environmental education were discussed by other participants too. One educator explained that schools are expected to provide a number of extracurricular subjects and activities for children and that this leaves little time for environmental education. Therefore, as a subject it is often overlooked and put to one side.

[T]he curriculum and the curricular pressures are such now that there is so much else that you have to do in primary school. You have to do music, and you have to do this, and you have to do computers, and you have to do so many things […] that there isn’t room for this (environmental education) you know, can’t afford to take the kids out because, have so much to get through there is no time for it

(EE6, 27th October 2009)
Despite criticisms from environmental educators as to the teaching of environmental education at school, teachers appeared positive and motivated in teaching the subject. Many teach environmental education as part of curricular areas such as SESE and SPHE, which cover a wide range of subjects, including science, history, geography (SESE) and studying the world around us (SPHE). Some staff found the curriculum easy to work with and appear confident in their abilities to teach environmental education on a regular basis. One teacher, for example, noted that although the curriculum is busy ‘we can pick and choose within it as well you know’ (SS11, 25th June 2010). Another teacher acknowledges that sometimes she may have a separate lesson for environmental education but ‘a lot of the time it does integrate well with other subjects’ (SS7, 10th May 2010). This was repeated by another teacher who described how she structures and organises the curriculum to include environmental education. However, the latter part of the quote does infer time pressures and highlights the importance or necessity of forward planning in order to include environmental education.

[You can get the strand units to fit into what you are doing you can talk about habitats very easily, when the animals are going to hibernate in winter. So you can do that strand unit at that time and there is no problem. It's tricky coming to the end of the year when you are trying to get everything done, but good forward planning ensures that you get everything covered](ibid)

Interestingly, school staff did not mention the state, semi-state or NGO environmental education programmes already discussed. Nevertheless, some teachers referred to other programmes that run within a school environment and complement curricular areas. This highlights a wide range of environmental education services that are also available to primary schools. For example, some mentioned a programme called ‘Incredible Edibles’, which is run by the Department of Education and Skills and encourages children to be involved in creating a vegetable garden at school (SS1, 20th April 2010, SS8, 11th May 2010, Incredible Edibles, 2014). Here, pupils grow a variety of vegetables from seed,
which can range from ‘planting potatoes and strawberries lettuce’ (ibid). When the seedlings have grown they are transplanted from the classroom to a vegetable garden in the school grounds. The children contribute to the care of the produce, in addition to learning how to grow vegetables and developing knowledge about other plants and insects they may encounter.

Other schools were involved in a regional marine life programme which runs throughout the academic school year (Galway Atlantaquaria, 2014). This particular programme consists of a number of strands. Firstly, an aquarium is delivered to the school and children are encouraged to bring in some additional fish. One teacher described the scene shortly after the tank arrived in the school and that ‘there are lots of kids coming in with buckets of prawns and crabs’ (SS6, 10th May, 2010). Secondly, a marine expert visits the school to educate children on how to look after the aquarium and care for native species including, shrimp, starfish, sea urchins and crabs. With this programme children are active participants in their environmental education as they ‘feed them and clean it [tank]’, ensuring that the marine life are healthy (SS7, 10th May 2010, SS10, 24th June 2010). Some schools differ in the positioning of the aquarium. One primary school, for example, confined the tank to a classroom so that the children could interact with it daily whereas another school placed it in the reception for all pupils to observe. An educator involved with the latter school surmised that ‘a school goes in cycles […] good teaching should stop before they get bored with it’ (EE8, 18th November 2009). In this way the children learn about marine life in cycles, with the tank occupied during the winter months only. This orientation focuses on keeping children interested with the topic and enthusiastic about marine life.

Some schools connect with events available to the general public that provide the opportunity for a class to engage in environmental education. One school, for example, benefited from visiting experts during ‘Bog Week and Sea Week’, and school children
are often brought ‘on little trips […] looking for bugs […] classification of the trees and the plants’ (SS6, 10\textsuperscript{th} May 2010)\textsuperscript{29}. Interestingly, the teacher stated that the visiting educators help alleviate curricular pressures and time constraints, particularly in relation to the subject of science. This suggests that when under pressure teachers’ avail of these yearly events as a provider of environmental education more so than complementing ongoing lessons within a classroom context. It can also provide a new educational experience for classes, different to that provided from day to day.

[S]ometimes you may not get science covered in a week and you go ‘well I know I’ll make up for that again when it’s Bog Week or Sea Week’

( ibid)

Primary schools also avail of local amenities and take environmental education outdoors. One school goes on fieldtrips to a local woodland where, through a number of games and activities they learn about various plants, animals, insects and habitats. One teacher described how the children ‘met the ranger […] and they […] loved it’ (SS3, 29\textsuperscript{th} April 2010). The trips away from the school environment to areas of local natural interest are an enjoyable experience for the children. In meeting with wildlife rangers, children get a firsthand insight as to what a ranger does and the role they play in their locality.

Not all school staff embrace environmental education or avail of an outsourced programme. Some find that environmental education requires a significant amount of time and motivation. One teacher stated, ‘a lot of planning has to go into it, an awful lot of planning’ as ‘it would be difficult to fit it in I suppose, you have twelve subjects within the curriculum’ (SS10, 24\textsuperscript{th} June 2010). This suggests that curricular pressures, time constraints and the need for extensive planning can isolate environmental education. Another teacher felt pressure from the Department of Education and Skills to cover all

\textsuperscript{29} Appendix K (classification of tree on school grounds).
subject areas but that environmental education does receive attention through the subject area of science. However, he referred specifically to curricular pressures and the term ‘curriculum overload’. Although many teachers defended the curriculum (unlike most environmental educators who criticised it), there is a preoccupation to cover all subjects. This raises the question to what extent is environmental education fully integrated into a child’s primary education?

[T]he problem with the primary schools is that they have the term curriculum overload […] the department really want us to make sure that we are teaching what we are supposed to be teaching and giving it the adequate amount of time

(SS1, 20th April 2010)

It is interesting to note that a number of family interviews also included comments on curricular pressures and how it impacts the delivery of environmental education. The quotes below refer to parents only, as children did not engage in defining environmental education or its status in formal education. What emerges from parents’ statements is concern for teachers with many empathising with their workload. As a scientist one parent frequents her children’s school to help with science lessons, commenting on the busy curriculum and the stress teachers feel to cover all subject areas. Her quote infers that environmental education is not a priority within primary education, as teachers feel they have to focus on hierarchical subject areas.

There is so much for them to cover particularly in school I mean it's a multi classroom situation so there is three classes you know in the room […] quite a spectrum of abilities so that is very hard for the teacher […] so I think it's amazing they get through each day and they cover the basic strands that they are meant to but the science thing is just something we could do to help out

(F10, 22nd June 2010)

The previous statement suggests that an open school policy welcoming different parental expertise into the classroom could benefit teachers and enhance children’s environmental
education at the same time. However, it also highlights that due to demands and/or a lack of confidence on the part of the teacher, environmental education is marginalised even within a curricular strand of science. The idea of environmental education being part of science also raises questions. As another parent revealed, her children learn a lot about science but she wondered to what extent they learn about different aspects of the biophysical environment, particularly on a local level.

[O]ne term you are doing loads of science the next term you are doing loads of history or whatever em it would be nice if they did a bit more sort of local nature stuff

(F5, 20th May 2010)

Crucially, the families interviewed for this thesis did not refer to environmental education programmes described by environmental educators or school staff. More often parents commented positively on any educational programme that their child(ren) enjoy participating in at school. One child who referred to a person from the marine (aquarium) programme who frequents the school and teaches the class about marine life, ‘there is this girl, from I forget where the aquarium is, and she told us about that kind of stuff’ (F10, 22nd June 2010). His father also had a positive outlook on the initiative and that it fits with the school ethos, stating that ‘it’s a great school there is a considerate drive to do with animals, nature and the sea there really is’ (ibid). Another parent was also aware of an aquarium in the school, saying that ‘the girl from the aquarium comes in’ to the school and she enjoys hearing about what her son learned, ‘they come home with these stories of what they were doing’ (F12, 22nd June 2010). In relation to the aquarium, her son remarked ‘oh ya it’s really interesting’ suggesting his own enjoyment when learning about aspects of marine life (ibid). Other positive reactions surfaced in regard to taking class trips to areas of local natural interest. One parent and child from another school reminisced about the fun they had with a ranger at a local woodland.
**Parent:** Remember we had bags and you had a scavenger hunt

**Child:** Oh ya and we had to find everything. And we were split up into teams and [...] we found some animal trails

(F5, 20th May 2010)

The quotes highlight parental involvement in their child(ren)s education and a positive response to environmental education efforts. Another parent emphasised the benefits of such opportunities as children see different species in their natural habitats firsthand. However, the latter part of the following quote illustrates the perhaps intermittent value placed on such trips on the part of the school. Here, the educational approach is to make subjects vivid for children to enhance the learning experience but these opportunities only occur every now and then.

I think it's excellent and its related to stuff they can see [...] it's not just something out of a book you know [...] school last year they went on a bug hunt you know similar things like that

(F7, 1st June 2010)

Analysis of empirical data indicated that environmental education is not regular or fully integrated in a child’s primary education. Environmental educators, irrespective of the organisation they belong to promoted education and the development of a connection through learner relevant approaches in the natural environment. The emphasis is on the ‘experience’ and encounter of being outdoors rather than educational outcomes. The majority attempt to create an informal, unstructured experience for children however, educators argued that formal education minimises the impact of environmental education due to the rational education approaches preoccupied with ‘ticking boxes’. School staff, although partially in agreement with educators, demonstrated motivation to work with the curriculum and to provide adequate environmental education. They do this by availing of different programmes that can enhance children’s environmental awareness and knowledge. They did not refer to programmes put forward by environmental educators.
specifically but highlight an array of other initiatives that work with formal education. These highlight the wide-ranging choices available for schools and that some merely alleviate curricular pressures and time constraints within the classroom. Families demonstrated concern for teachers’ workload and are positive with regard to environmental education. One parent stated that she is actively involved in her child’s science education and though parental involvement is encouraging, an overloaded system appears to leave little room for the subject. Statements from parents and children illustrate a lack of awareness of programmes delivered by environmental educators and uncertainty with regard to regular environmental education at school. It is plausible that with so many initiatives available in the schools parents lose count or simply merge them together as enjoyable experiences for their children. It also suggests that only events child(ren) find relevant to them or enjoy is shared with parents. Environmental education possibly needs to take greater heed as to learner relevancy so as not to be dependent on school/teacher interest.

Solutions to the lack of environmental education at school were put forward by a number of educators. One educator recommended that programmes ought to facilitate the needs of teachers to increase the delivery of environmental education. It is important to be accommodating and flexible to complement ongoing lessons within the classroom and if requested by a teacher, additional resources should be provided. This approach implies not only is environmental education marginalised but also that school staff are ill-equipped or lack the knowledge to teach environmental education overall.

[T]hey ask ‘what do I do?’ and I answer ‘well what do you want?’ I like to know what they are doing in the class or have covered […] and what they need to cover because teachers they are very busy they have huge curriculums. So if you can help to cover some of that curriculum for them and it shows them a way of doing it

(EE10, 29th January 2010)
Another interviewee stated that primary school teachers can learn from environmental educators and use that knowledge to collaborate and work together. That way environmental education has a greater opportunity to be a priority subject alongside other subject areas. The onus is, therefore, on the teaching community to integrate environmental education into primary education. Interestingly, the use of the word ‘should’ in the following quote indicates that such an approach to environmental education does not occur in practice.

Environmental education should happen in an indirect way [...] that teachers who are interested in it should become the leaders and be able to help others.

(EE2, 8th October 2009)

One environmental educator advocated for the development of education centres to encourage more meaningful environmental education. The introduction of centers across Ireland could improve environmental education in primary education. He stated that ‘teachers need in-service on all of this (environmental education) and they don’t have enough of it’ (EE5, 22nd October 2009). Considering the number of environmental education programmes that visit schools, a centre could help structure the sector and its objectives overall. However, how effective another resource would be in getting children outside on a regular basis considering the demands within primary education is another challenge. Either way, environmental educators frequently criticised formal education, finding it overloaded and incapable of providing adequate environmental education.

This questions not only the content of environmental education programmes but also the frequency of any programme to form part of a child’s everyday education, an issue that will be discussed again in Chapter Eight.

Clearly there are differing perceptions across the interview groupings as to the purpose, strengths and weaknesses of environmental education today. As an outsourced
programme it carries great potential to engage children but its inconsistency and dubious, disjointed structure means its delivery is dependent on an interested school or teacher. The question arises as to whether other forms of environmental education exist (besides the curriculum) that can fully integrate into a child’s education.

5.3 An effective environmental education programme?

Unlike the programmes already discussed in this thesis, the Green Schools programme (GS) programme runs throughout the academic year(s). This particular environmental education programme was repeatedly mentioned across all interview groupings. Some educators suggested that the GS programme adopts a different educational approach compared other state, semi-state, NGO-led programmes already discussed. According to one interviewee GS primarily focuses on ‘children hitting seven steps of behaving in a green way’ towards environmental management and responsibility in school (EE7, 16th November 2009). This suggests a more rational and purposive form of environmental education, which contrasts with programmes that adopt a more experiential approach. On the other hand, another educator stated that the GS programme is a success story with regard to environmental management and praises it for generating both environmental awareness and responsibility toward reducing, reusing and recycling. Although the quote below does not reflect on the programme’s specific methodologies, it does highlight recognition of its merits among some environmental educators.

I think that has been one the really good things that has been very very successful […] made an awareness of reuse, recycle […] certainly if you were to hold a success story up that can be one of them as regards environmental education

(EE2, 8th October 2009)

The focus on waste management, reusing and recycling was emphasised by another environmental educator who observed that the programme has prompted social action in

30 See section 1.4 and 4.4 for more detail on the GS environmental education programme. All primary schools that participated in this research are involved with the programme, however as participation was voluntary it could not be foreseen prior to data collection.
terms of environmental responsibility from teaching staff to pupils which also transfers to the home.

[I]t has stirred people into action teachers and principals into action on you know the environment more so on the litter and all that […] it has got children educating their parents about the environment […] children going home […] we must recycle

(EE5, 22nd October 2009)

Two teachers from separate schools also referred to children educating their parents about waste management and energy consumption in the home. One teacher is delighted with the programme as learning ‘how to reduce reuse and recycle […] worked a treat’ as the children ‘used to go home and educate their parents!’ (SS8, 11th May 2010). This suggests that the educational approach within the GS programme benefits both children and parents as they monitor and manage the consumption of resources such as energy and water in the home. The following quote further emphasises this point as some children reprimand their parents for using too much energy (electricity) at home.

[T]he parents said they [children] would go home and watch the little wheel in the [meter] and they would reprimand the parents that they are wasting too much electricity

(SS14, 13th July 2010)

Parents were positive with regard to the GS programme and the promotion of environmental responsibility. Some refer to the enjoyment experienced by children taking part, for example, one parent comments ‘well, our lads love recycling’ (F2, 13th May 2010). Similarly, another parent found her children like learning about reducing waste and food packaging:
Oh it's great even for the kids like even for their lunches there are certain things [...] to do with the green flag [...] if they were bringing plastic stuff and containers, drinks like that, they know how to recycle and stuff like that so it's great

(F17, 13th July 2010)

This concept of environmental responsibility continued as one child described, with great enthusiasm, his duties as part of the GS committee. He had to wear a green vest, carried a clipboard, and work as part of a team to ensure waste is allocated in the correct bins throughout the school. The quote also underlines an aspect of enjoyment from a child’s perspective of taking part in the programme. The GS jobs contribute to a sense of accountability towards the programme’s environmental ethos as well as being a part of the committee. This was considered to be very important, with one educator stating that ‘they [school] have a green committee and they [children] are killing each other to be on it’ (EE7, 16th November 2009). As the following statement by one of the children demonstrates there is a sense of purpose and structure to encourage responsible environmental behaviours:

And there is a green clipboard, and a pen, and green bibs, and then we walk all the way down to Room One which is at the last bit of the school, so we go into the classroom, go to their green and grey bin, and we look in and tick it if it's all good and if there is something wrong in it we kind of ‘X’ it

(F8, 17th June 2010)

Aside from the environmental management, another perspective becomes evident which promotes environmental education outdoors. Within this context, school staff referred to vegetable gardens or ‘organic gardening’ as part of the GS programme (SS2, 21st April 2010)^31. The pupils learn how to grow vegetables from seed. One teacher stated that an important part of the gardening process is ‘companion planting and careful monitoring to

^31 Appendix K.
ensure we don’t have any harmful insects’ (ibid). The remark about the harmful insect suggests children are actively involved in the growing process but under a management perspective more so than an experiential, learner-led one.

However, a teacher from another school referred to the growing process as ‘feeding into the whole idea of caring for your locality’ (SS5, 7th May 2010). This sense of place while gardening does contextualise a concept of learner-led environmental education in the biophysical environment. One child emphasised this point when she described what she sees in the vegetable garden. While looking at one of the lettuces she found caterpillars (described as consisting of big ones and baby ones) and butterflies. Here, the child becomes an intimate observer of her immediate natural surroundings and experiences it to a degree, at her own pace.

Looking at the lettuces and then we found caterpillars big ones first and then we found little baby ones and then we were passing boxes that were butterflies in them too

(F8, 17th June 2010)

Interestingly, some environmental educators were critical of the GS programme as it promotes a different type of educational experience, embracing what some them saw as a utilitarian and rather managerial notion of the natural environment. One educator distinguished between her work with a state-funded organisation and the GS programme stating that ‘they [GS educators] don’t really do what I do’, finding it to be more about ‘energy, wind power and all that type of thing, recycling’ (EE1, 28th September 2009). Her own work emphasises firsthand outdoor environmental education, with no specific outcome in mind, which in her opinion differs to the educational approaches of the GS programme. Another environmental educator remarked that the programme is ‘to some extent about self interest’ in so far as solving environmental problems and ‘living lightly

32 Appendix K.
on the planet’ (EE4, 14th October 2009). This particular educator divided environmental education into two parts, firstly, with regard to social responsibility or self interest and secondly, the ‘pursuit, investigation and exploration of nature’ that encompasses a notion of empathy or is ‘valuable for people’s souls’ (ibid). The latter inferred environmental education ideally should promote an intimate connection with one’s surroundings which this educator describes as being separate to the purpose of the GS programme. Another educator questioned the overall purpose of the GS programme, asking what does it ‘really mean in the end?’ and remarks that ‘it’s not about earning something, it’s about learning’ in relation the award scheme (EE10, 29th January 2010). These comments are insightful as they illustrate differing opinions as to the purpose of environmental education from those working within the sector.

The success of the GS programme in Ireland reflects its ability to integrate into formal education. A recurring theme from interviewees finds that the programme’s emphasis is on specific learner outcomes and goal-orientation toward an environmental management plan. This does not take from the enjoyment of children being actively involved in different projects within the school. However, the concept of the natural environment that it exhibits differs from those promoted by other programmes, as it focuses on environmental problems, management and the monitoring of resources. Additionally, criticisms from environmental educators suggest that the GS programme offers a different type of environmental education.

5.4 Conclusion
To conclude this chapter identifies two types of environmental education in Ireland. Both ‘strands’ are representative of themes and contradictory findings that emerged from the empirical data. Strand 1 of environmental education infers a humanistic approach; a focus on different facets of the learner and a prioritisation of experiential learning and the development of a strong connection between children and the natural world. Environmental educators advocate this approach, which is demonstrated by their
descriptions of the intensive planning and preparation they engage in so as to provide a unique opportunity for children in their natural surroundings. This first strand represents many of the short-term outsourced programmes available for primary education. Strand 2 of environmental education promotes a more rational or utilitarian approach that focuses on the management of energy consumption, monitors resource use and is more often goal-orientated. As an outsourced programme or a curricular area, it integrates into mainstream primary education with greater consistency and over a longer period of time.

Strand 1 and Strand 2 represent the patterns, relationships and contradictions that emerged from the data. In some cases programmes are paradoxical in nature, for example, digging soil to find mini-beasts with no particular educational outcome in mind (Strand 1) versus categorising and managing waste indoors (Strand 2). This identifies environmental responsibility as the management and monitoring of resources. The latter emphasis is quite different to ‘an outdoor classroom’ concept of environmental education put forward by many of the environmental educators interviewed. Table 11 presents the findings that emerged from this research clearly outlining the two different pedagogical approaches and to a certain extent, ideologies as regards the purpose and goal of environmental education.
There are discrepancies between interview groupings as to what environmental education is and what is important in practice. However, this also reveals that contradictions exist as to the educational approaches and in particular concepts of the natural environment that underpin them. What do differing understandings say about interviewee’s relationship or connection with the natural environment? Considering a central aim of environmental education is the development of environmentally sustainable lifestyles, it is imperative to critically analyse how those involved in the teaching and learning of environmental education view, discuss and interpret the natural environment. The findings from this chapter set the scene for the critical examination of the interviewees’ perceptions, which are presented in Chapter Six.

<table>
<thead>
<tr>
<th>Emerging concept of environmental education</th>
<th>Description</th>
<th>Example</th>
</tr>
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</table>
| **Strand 1**  
Holistic, explorative, aesthetic, emotional, connection, cultural, enjoyment | Humanistic educational approach (outdoor focus), games, activities, experiential learning | EE: ‘[T]here is no comparison between going out even in their own yard with a worm or a snail in their hand, that is a first rate experience’  
SS: ‘[O]n little trips […] looking for bugs […] classification of the trees and the plants’  
F: ‘I think it's excellent […] it's not just something out of a book […] last year they went on a bug hunt’ |
| **Strand 2**  
Purposive, responsible, resource management, | Rational educational approach, educational outcome in mind | EE: ‘I think that has been one the really good things that has been very successful […] made an awareness of reuse, recycle’  
SS: ‘[T]he parents said they [children] would go home and watch the little wheel in the [meter] and they would reprimand the parents that they are wasting too much electricity’  
F: ‘And there is a green clipboard, and a pen, and green bibs, and we […] go to their green and grey bin, and […] if there is something wrong in it we kind of ‘X’ it’ |

Table 11: Two strands of environmental education
Chapter 6
Views, experiences and perceptions of the natural environment:
Evidence from empirical data

6.1 Introduction

There are little advancements made in relation to the sociological study of environmental education and the development of conceptual tools for environmental education research in Ireland (and abroad). Environmental educators, school staff and families do not necessarily construct their thoughts of environmental education in the linear way, as many of the publications which are referenced in this research suggest. Interviewees draw on a diverse range of work experiences and learning processes which develop a nuanced picture of environmental education consisting of a factual-rational approach and a more emotionally-engaged route that seeks to develop harmony and a close connection with the natural world. To derive conclusions from data analysis and begin the discussion chapter at this point would ignore important clues for the development and advancement of environmental education overall. The data already identifies differing notions of the natural environment that underpin many of the environmental education programmes (Chapter Five). This thesis argues that perceptions of, for example, environmental educators, influence the content of their programmes and environmental education practices. The way in which school staff talk about the natural environment influences how and to what extent children experience environmental education at school. Moreover, what influences the perceptions of parents arguably plays a central role in shaping environmental attitudes and behaviours. However, environmental education research often assumes rather than empirically investigates children’s perceptions of their natural surroundings. Though environmental sustainability is a central aim of environmental education, the way the interviewees talk about it, ‘the environment’ is integral within that context. This chapter investigates conceptions of the natural
environment that participants reveal so as to ascertain their implications for environmental education and vice versa.

**Section 6.2** analyses how and in what way interviewees talk about and perceive the natural environment, paying particular attention to potential empirical expressions of the concepts of the environment and nature outlined in Chapter Two. Conceptual tensions and patterns provide new evidence as to how people understand the natural world but also possible influences which go beyond the nature/environment distinctions. The data reveals valuable insights for environmental education research and practices but also its role within sustainability and social research.

Section 6.3 and Section 6.4 respectively examine further a typology of concepts that emerged from section 6.2. **Section 6.3** analyses interviewees’ perceptions of the natural environment as a separate entity to the human world, to be responsible for and focuses on monitoring and management of natural resources. The section connects with dominant arguments as to children’s (dis)connection with the natural environment. However, it will be shown that children challenge this providing information as to how they as learners perceive the natural environment, thus offering important clues for the advancement of environmental education. **Section 6.4** examines further the concept of the natural environment as being intrinsically bound with the human world. It attempts to gain a better understanding of the relationship between a sense of connectedness and what it means for teachers and learners in environmental education. How and in what way adult and child participants (in particular) describe this type of relationship provides new evidence for environmental education while also providing valuable insights that contribute to wider (environmental) sustainability debate. The findings in section 6.3 and section 6.4 are presented in an innovative way to capture the concepts that emerged from the data. **Section 6.5** provides a detailed summary and the conclusions of this chapter.
6.2 Interviewees’ perceptions of the natural environment

When talking about the biophysical environment people generally use phrases such as ‘the environment’, ‘nature’, ‘outdoors’, ‘landscape’ or ‘the natural world’ loosely and interchangeably. Within environmental education research, many of these are frequently used without a clear definition as to what they mean. Chapter Two offered a critical analysis of prominent concepts used both in research and environmental education, namely ‘nature’ and ‘the environment’. Some interviewees clearly distinguished between these two taken for granted concepts. One educator, for example, stated that:

I have always been interested in nature, which if you like is slightly different to the environment

(EE4, 14th October 2009)

This educator described himself as a ‘hunter gatherer and not a cultivator’ and throughout the interview he referred to a concept of nature more so than a concept of the environment. However, he also divided ‘environmental education into two bits’, distinguishing between two particular concepts of the natural environment that underpin them. Firstly, for him environmental education infers exploration and celebration ‘of nature per se for no particular gain just because it’s interesting and because it’s educational and valuable for people’s souls’ (ibid). Secondly, on self-interest, for example, if society does not protect the environment ‘they will be up to their own neck in pollution’ (EE4, 14th October 2009). Within this context a concept of nature revolves around the development of connectedness and harmony whereas a concept of the environment revolves around a more anthropocentric perspective. This divide is stark but also descriptive as to how he perceives and distinguishes between aspects of society-environment relations but also the purpose of environmental education within that context.
Another environmental educator showed similar interpretations in relation to both concepts. She acknowledged that the general public are environmentally aware, though environmental attitudes tend to be more about doing ‘your bit’ in terms of reducing waste and recycling. The educator suggested that managing waste refers to social responsibility (environment) which is in effect separate to developing an appreciation or connection with the natural world.

I think there is now but a lot of people think ‘oh ya well we are very good at the recycling now’ and they think that's about nature!! That's about waste!

(EE16, 18th February 2010)

A similar differentiation between the environment and nature was discussed by another environmental educator. When asked about her interests in the outdoors, she focused on animal welfare, environmental organisations, responsibility and activism. She referred to nature as being part of her everyday life; it is local and a ‘pure’ entity for enjoyment and recreation. On the other hand, an ‘environmental interest’ suggests responsibility, preservation and political activism.

In the environment ya I was interested in seals being clubbed to death or I joined Greenpeace and I became a vegetarian so it was more an environmental interest and a pure nature interest em but I was always into the outdoors so it probably grew from that

(EE13, 10th February 2010)

The previous quotes illustrate the diversity of meanings that are attached to the concepts of the environment and nature. However, some use other terms, such as ‘landscape’ which encompasses trends of both the environment and nature. By doing so, one educator (deliberately) evoked numerous social and cultural meanings to do with the landscape, and in particular, peatlands in the west of Ireland. He discussed general misunderstandings of peatlands as places of long days, of hardship and tough work. As
peatlands are isolated from general amenities with little shelter from the elements, it is often associated with ‘drudgery’ (EE8, 18th November 2009). However, his use of the word ‘landscape’ also depicts emotional connections to a particular environment, empathetic tones, a sense of community and comradery. It is interesting to note that although the peatlands are depicted as difficult places to work, they are associated with social occasions between individuals or wider communities. The interviewee referred to a landscape of enjoyment and social interaction, which coincides with concepts of nature as something to appreciate, learn and know about. On the other hand, working on the bog for energy consumption in the home indicates a notion of the environment as a resource. Therefore, the use of the word ‘landscape’ merges themes to do with ‘the environment’ and ‘nature’, such as the management of resources, a place to live, or feelings of enjoyment.

[N]one of the finer things about that kind of landscape were ever mentioned [...] places of drudgery, places of cold tea and hard days [...] there were lots of days for people in the rural landscape where they had good days on the bog and they had lots of fun

(EE8, 18th November 2009)

Overall, environmental educators suggested that a concept of the environment is synonymous with being separate to the human world, an object and a problem. On the other hand, nature frequently reflected their feelings of being intrinsically bound with the natural world but can also infer a separate entity, or ‘pure nature interest’. However, educators also referred to enjoyment, adventure, mental and physical wellbeing, which broadens the concept of nature and potentially adds to more general interpretations than these currently used within environmental education.

Similar themes emerge from school staff but on a more subtle basis. As the interviewer intended, interviewees spoke extensively about the relationship between environmental education and children. As most school staff focused their answers on the curriculum and
various environmental education programmes, finding such subtleties has been challenging.

However, similar to many environmental educators, one teacher identified with differing concepts of the natural environment. The primary school where she works has a range of environmental education initiatives that run throughout the academic year. The teacher described the confidence children in the classroom gain from learning about the natural environment and their joy in showing off newfound knowledge to visitors. When asked what other benefits such knowledge may give to a child, she linked respect with a concept of the environment while nature encourages appreciation, empathy and associates with recreation. It is within those contexts that the environment suggests a separate entity, associated with responsibility for prudent resource use and management. Nature, once again, relates to interconnectedness, fun, wellbeing, and a deeper appreciation of the natural world.

[W]ell I suppose a sense of respect of their environment […] and I suppose it's just a care in nature really and they understand that they have to protect what is around them […] they get a sense of enjoyment being outside and getting in with the digging and the dirt and down at the beach and getting soaked it's fun it really is there is a sense of fun out of it

(SS6, 10th May 2010)

It is important to note at this point that certain areas of the primary curriculum could have influenced the way the interviewees spoke about the biophysical environment. For example, Social Environmental Science Education (SESE) includes Science, History and Geography and the idea of caring for the locality and also part of the Social Personal Health Education (SPHE) inform environmental education at school33. Although strands within the primary curriculum offer guidelines for the teaching of environmental

33 See section 4.2.2 for details on The Primary School Curriculum (1999-present).
education, quotes from teachers suggested differentiations exist on a more personal level between concepts of the environment and nature.

This is observed from SS7 who divided concepts of the environment and nature into two different strands. However, her statement also lacked distinction which could potentially influence her pupil’s conceptual understandings.

I know this is a fantastic school for learning about nature and everything about the environment, it's just brilliant

(SS7, 10th May 2010)

Distinctions between nature and the environment (or a lack thereof) can arise not only from the teacher’s own perspective or the curriculum documents but also through environmental education programmes in the school. A teacher from an island school off the west coast of Ireland focused on the environment in particular when discussing an environmental education initiative and that children learn ‘how best to treat’ it. Here, the word ‘treat’ suggests humans controlling the nonhuman environment through prudent resource use, recycling and in this case reducing waste in the school environment. Arguably, this notion of managing resources frequently complements an attitude toward ‘environmental’ responsibility.

[T]he awareness it [environmental programme] has created a huge awareness in children of you know recycling reducing conservation all of that because they are all tuned into how best to treat the environment

(SS8, 11th May 2010)

In contrast, a teacher from a different school used the term ‘environment’ (and not nature) to talk about exploration, empathy, a sense of place and enjoyment. However, a more familiar attitude to the environment is used in the latter half of the quotation where she encouraged children to be environmentally responsible.
I think once you are involved and you know the process of planting […] what composting is […] how to give sunlight and food and love […] all of the habitats in your environment children are definitely less likely to litter […] I think that if we were making children at least environmentally responsible, I think that is the biggest advantage to involving them in outdoor activities.

(SS5, 7th May 2010)

Analysis reveals the complex nature of how and in what way school staff described or associated with the natural world. Some distinguished between concepts which could be influenced by personal work experiences. The previous quote, for example, describes progressive education experiential education in childhood that helps develop a sense of environmental responsibility through to adulthood. This suggests that being outdoors gives a better understanding of how to be environmentally responsible but not necessarily emotionally connected to it. Does an understanding of the ‘process of planting’ give impetus to be environmentally responsible citizens? What about being outdoors for no other purpose than enjoyment and emotional wellbeing?

Families reveal similar patterns as regards concepts of the environment and nature. As the interviewer intended, family interviews were participant led. Open-ended questions with a semi-structured format enabled fruitful conversation and dialogue between parent and child. Subtleties again were challenging, as most spoke about everyday activities that were primarily focused on wider social changes, generational differences, and recent educational events that were fun for children. One parent stated that there was ignorance towards the environment by previous generations. Here, he sees ‘the environment’ as what surrounds people; similar to other interviewees it is conceptualised as a separate entity to that of the human world.

There was a complete ignorance, the word environment was never used. Do you know what I mean? It was the room you were in was the environment whereas the exposure it gets now is massive you know you can’t help but be aware and attitudes have changed.

(F9, 22nd June 2010)
Another parent referred to changes in environmental attitudes in recent decades, with children today being more exposed to global issues such as climate change, loss of biodiversity and marine pollution. This contrasts with intergenerational differences, as the following quotes points towards a concept of the environment which coincides with a problem to be solved.

There is a lot more negative environmental sort of issues and they [children] are exposed to it now with fish stocks depleted and pollution in the environment […] when we were growing up there was never […] any thought of stocks or […] stocks of animal being depleted and damage to the environment

(F12, 22nd June 2010)

One parent referred explicitly to the environment as a resource. She described the school her son attends as ‘very focused on the environment’, and in particular the excess wrappings on food produce (F3, 19th May 2010). She saw the benefits of working in tandem with environmental initiatives at school to cut down on waste at home. What is interesting is the attitude toward excess packaging as being bad for the environment. It is argued that such a view is limiting, as it does not incorporate an understanding of food production and its relation to rising levels of consumption. Moreover, this interviewee associated the environment with global issues only and attributes responsibility to solve them on individual consumers. In essence, the environment is once again seen as a ‘resource problem’ to be addressed and appeals are made to the responsibility of individuals for maintaining environmental integrity.

[I]t helps to have the school on the same page because if we are at the grocery store and I don’t want to buy something because of the packaging he [son] understands that because he is learning about it in school too ‘oh look at all of that waste of packaging and that's not nice’

(F3, 19th May, 2010)
Parents often referred to nature for enjoyment and personal wellbeing and how being outdoors brings light relief from daily routines. One parent, for example, discussed growing vegetables in her garden as fun and stated that for previous generations vegetables were planted out of necessity whereas now it is educational and a family activity. This emphasises changes in attitudes between generations, but importantly different interpretations of the cultivation of nature as a source of wellbeing.

"It's normal and natural, you know, to get an understanding of where your food comes from. I love having the children out in the garden and planting, and we go out and watch the seeds come up and they go out in the evening watering them. I know my parents did grow vegetables but we weren't really involved in it until it was a job to go out and get something but it wasn't made into a fun thing for us."

(F7, 1st June, 2010)

The pattern of enjoyment and recreation in nature continues as one parent recalled her father acting as a mentor for conservation and education about different species including birds and bats. Here, being in nature coincides with a personal intimate relationship. There is an informal, reminiscent and empathetic tone with the use of the word 'nature'.

"We would have certainly been taught about nature but my parents, my dad would be quite into nature he did a lot of shooting but would have also been into the whole nature and conservancy side as well so I would have had a background in that you know like identifying birds and bats that's just kind of how I grew up."

(F10, 17th May 2010)

However, tensions between the environment, nature and other terms such as the outdoors emerge from the same interview. When asked if it is important for children to learn about different aspects of the environment overall, the same parent referred to being ‘quite outdoorsy and quite into nature we are taking part in the butterfly project’ and ‘think it's very important to be aware of your environment’ (ibid). Here, the environment and nature are used interchangeably/as synonyms, without much reflection as to their potential (in)compatibility. What this shows is that in some cases perceptions of the natural
environment revolve around motivation and active participation towards its welfare, but often for different reasons.

The children who were interviewed tend to blur any distinctions. Some would interrupt the flow of the interview with a story to describe what they do, see and experience when outdoors. Many spoke about building forts, climbing trees or taking part in activities with friends. Therefore, specific use of the environment or nature fluctuated as the interviewer focused on engaging children in a conversation. More often the term ‘outdoors’ gives children a better understanding as to the purpose of the interview. Questions also reflect conversations that occur prior to recording. In that way, once recording begins the line of conversation and questioning was familiar to the children. One family, for example, had recently visited the Natural History Museum in Dublin so the interviewer started recording and asked what they saw to which one child replied; ‘a skeleton giraffe and still with its fur’ (F7, 1 June 2010). This leads to inquiries about other animals they see locally and then subsequently asking if they enjoy being outside.

Q: And do you like to play outside?
A: Ya
Q: What do you play outside?
A: On our bikes

(F7, 1 June 2010)

There is a tendency for children to talk about things they have done or seen, games or activities played and generally evolve into a story like format. With that in mind, their perceptions of the natural environment are quite clear. One child when asked if he liked playing outside, simply said ‘ya’ and when asked why; ‘because it’s more fun outside’. A sibling offered more information, identifying places outside that were good for games and fun.
And there is all the bushes that you can play in you can climb up in the trees and you can hide in the bushes

(F10, 17th May 2010)

Asking the same question, another child gave a similar answer. He identified the outdoors as fun, enjoyment, exploration and an opportunity to play Star Wars. The quotes depict concepts of the natural environment as 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

(F12, 22nd June 2010)

However, subtleties can appear with regard to concepts of nature. One child stated that he liked being outdoors ‘because you can find stuff outside and you can find nature stuff’ (F2, 13th May 2010). When questioned further as to what kind of things might be seen, he replied ‘em like em bugs, birds’ identifying nature as living things, part of his immediate surroundings and a source of fun. Children did not necessarily refer to the ‘environment’ or ‘nature’ specifically and as previous quotes illustrate, most are more preoccupied with sourcing adequate play areas. This suggests familiarity with being outdoors and that children see it as an intrinsic part of their everyday lives.34

Thus far findings from qualitative data unearth new evidence that both adults and children switch between concepts or use a variety of different terms when describing the natural environment. The data also illustrates possible influences on interviewees’ perceptions, including personal experiences, profession, age and general environmental

34 This is further discussed in section 8.2.

158
knowledge. What is interesting is that although complex the welfare of the natural environment is a concern and many appear to adopt positive environmental attitudes and behaviours. However, for environmental education the perceptions of children are crucial as they clearly show an affiliation with the natural world, which is mainly for the purpose of play. This suggests that understandings of their natural surroundings coincide with direct experiences. This is particularly evident when they told a story or describe an event outdoors to elaborate on their point of view.

Figure 5 illustrates the complex picture that emerges and the factors that possibly influence interviewee’s conceptions of the natural environment thus far.

Across all interview groupings strong patterns emerged. On the one hand, the term ‘environment’ is often used and understood to mean ecological problems, with many interviewees advocating better resource management to solve global issues (recycling, energy consumption). The use of the term ‘nature’ frequently denoted empathy, a sense of place, emotional connections and recreation in the outdoors. The co-existence of these two conceptual strands suggests that interviewees’ knowledge could be a substantial aid to the effectiveness of environmental education (to be discussed in Chapter Nine).
Overall, interviewees reflected their perceptions, which may be influenced by a number of factors, socio-economic setting (rural, urban, city), participant age, social status, educational background, profession and exposure to the natural environment.

However, the patterns revealed in this section require further investigation. Considering that findings presented so far have demonstrated the varying influence of mainstream education on environmental education more generally, and semi-state and NGO-led environmental education programmes in particular, the ways in which educators, teachers and learners interpret the natural environment provides additional hints and clues as to the content and delivery of environmental education overall. The remainder of this chapter draws on the differing conceptual strands in an attempt to clarify how they affect perceptions.

6.3 Interviewees’ understanding of human – environment relations

Many environmental educators interviewed discussed the interactions and relationship between people and their surroundings. As previously discussed most environmental educators either worked independently or with organisations in Ireland regularly engaged with the general public, including primary school children, students, teachers, parents and the wider community. Within that context many shared the opinion that people are disconnected from their natural surroundings citing over dependency on natural resources and high energy consumption. One educator, for example, discussed how some within society tend to focus on the economy alone and do not see the connection between of natural resource use, economic growth and issues of (un)sustainability. He argued that the entire biophysical environment is often seen as being external to humans and part of the nonhuman world. This particular educator saw the biophysical environment as inextricably linked to human life and vice versa, thereby rejecting concepts of the environment as a separate entity whose quality is of little or no concern to humans.
(People) think that business is the only thing […] they don’t see the link between ecology and sustainability and how we are all part of the environment and […] how animals can be used as indicators of the quality of the environment

(EE12, 9th February 2010)

Another educator referred to the natural environment as a separate entity but also highlighted its ability to act as a barometer. He mentioned the tagging of birds as a way to monitor their lifecycles and habitats but also remarked that bird numbers can be an important indicator of wider environmental issues. He noted that society has a general perception of environmentalists within society is that they are misguided in their efforts or ‘nuts’, which in turn suggests a limited value placed on the biophysical environment, or indeed biodiversity research overall.

[People think sometimes these guys are nuts ringing birds all over the place […] but if you have say 5,000 birds nesting on an island and the following year […] you find that maybe there is half that number, what has happened? They are sea birds is there something wrong with the sea? Something wrong with the food? You know we can use nature as a barometer but perhaps we don’t think about that end of it seriously enough.

(EE3, 12th October, 2009)

In reference to a question regarding environmental attitudes, another environmental educator discussed the mismanagement of essential natural resources. He described the natural environment as being separate to humans whilst acknowledging the exploitation of resources caused by human action. He stated that environmental attitudes in Ireland in recent years has not changed, with little appreciation and understanding of the origins and utilisation of precious natural resources. This suggests that the abuse of resources has increased dramatically in recent years - which also suggest an awareness of the limited impact of environmental education.
I don't think attitudes necessarily have changed [...] we would exploit it every bit as much as we would now we use nature. It’s just that our part to influence nature I think changed so much in the intervening years that we tend to damage it a lot more.

(EE18, 23rd July, 2010)

On the other hand, one educator argued that appreciation of resources stems from an intimate connection and understanding of interdependencies between human beings and their natural surroundings. In her opinion a (dis)connection contributes to an ignorance of environmental issues and motivations to solve them.

[We should have some relationship with the environment with nature for so many reasons so that we appreciate so you have some understanding of how we are part of it [...]]

(EE13 10th February 2010)

Another educator commented on the (dis)connect between humans and their natural surroundings. For him, an overemphasis on the exploitation of resources lies at the heart of this. Although not explicitly referring to the natural environment per se, the interviewee described this (dis)connect by recounting the scene of a young woman sitting by the sea smoking a cigarette, wearing earphones and listening to music. His personal attitude is one of bewilderment as he feels she is missing out on the benefits of the sea air, sounds, and bird calls. He wondered why she is not wearing a blindfold. The educator surmised that many people have no interest in using their senses that way. His own attitude towards the natural world is one of awe, enjoyment and mental wellbeing, and he admitted to having a personal connection with his natural surroundings. The attitude of the young woman, he argued, is the opposite.
[T]he girl she was sitting out on a rock looking out to sea she had these things stuck in her ears listening to something and she was smoking a cigarette and I almost felt like going down and asking her why she wasn’t wearing a blindfold (laughs) […] I felt she was missing out on so much […] beautiful sea air and she wasn’t really listening to the sound of the sea […]

(EE3, 12th October 2009)

While his example could be partly rooted in generational differences between the educator and the young woman and/or wider societal changes, it nevertheless captures a possible transformation of environmental attitudes. A further example from this educator illustrated this point. Amongst his other credentials, he is a keen ornithologist. During a public talk he gave on corncrakes and their scarcity, he showed images and played the sound of the bird. He then asked the audience if they had any questions regarding the lifecycle of the corncrake, where to see them, and can cause for their demise. One man held up his hand and asked ‘excuse me now; you say the corncrake is extinct?’ (EE3, 12th October 2009). The interviewee replied that it is extinct in some areas and becoming extremely rare in Ireland. The man replied ‘but sure cripes with a voice like that doesn’t he deserve to be extinct!’ (ibid) Although an amusing and witty remark, it highlights a rather narrow approach towards the natural environment which completely ignores the connectedness of species within ecosystems which humans also inhabit, use and exploit.

Teachers invariably talked from the perspective of the primary school curriculum. This is not surprising as the interview occurred in their place of work and questions refer to the teaching of environmental education and how children experience it (in their opinion). Within that context, some expressed concerns about the growing (dis)connection between children and the natural world. One teacher discussed children’s lack of basic knowledge, finding that the majority of her students do not know what the word ‘hibernation’ actually means or how to identify mammals such as the badger. Therefore children without an intimate knowledge or direct contact with the natural environment could perpetuate the
limited understanding of the natural environment and its resources (as described by educators).

[T]here would be a handful of children that would have heard the word ‘hibernation’ […] the international children you are teaching them the word ‘badger’ […] but more often than not with international and Irish children […] it's a major difficulty because they have never seen the animal or seen the picture of the animal or spoken about the animal before

(SS5, 7th May 2010)

One teacher argued that Green Code mottos can help children learn but that perhaps a greater balance needs to be struck between an emphasis of resource management on the one hand, and outdoor play on the other. The mottos illustrate a perception of the environment as something to fix and only in relation to global concerns. The use of rhyme is also an interesting approach to developing environmental responsibility.

‘Busy bee busy bee keep our playground litter free’, ‘don't be mean keep our school clean’, ‘be polite and use paper right’, ‘close the doors to have heat more’, ‘when its bright switch off the light’, ‘spread the word and save the world’

(SS2, 21st April 2010)

Another teacher observed that monitoring energy use is constant within the school environment. Children enjoy sharing the responsibility; however, ‘responsibility’ is the operative when describing the natural environment. The teacher clearly shows a purposive approach when outdoors, children are informed and encouraged to participate in sustainable behaviours to help solve wider global (waste, consumption) environmental issues.

35 Associated with the GS programme and ‘a statement of the objectives demonstrating the school’s commitment to environmentally friendly actions’ (An Taisce, 2013).
I think there is ongoing discussion constantly about reducing, reusing, recycling […] I think that if we were making children at least environmentally responsible, I think that is the biggest advantage to involving them in outdoor activities

(SS5, 7th May 2010)

Statements by other school staff can also reflect attitudes of responsibility for, and the management of the biophysical environment. Furthermore, the data from the teaching profession illustrate how some interpretations revolve around waste, consumption and monitoring energy use as part of a child’s education. On the other hand, many of the quotes decry the lack of hands-on interaction children have outdoors, which some feel cannot be ignored.

Interestingly, one parent questioned to what extent environmental responsibility and the monitoring of resources and waste actually benefits the natural environment long-term. She wondered if all recycled material is in fact recycled, or if it is just deposited somewhere else. This remark questions environmental sustainability efforts and success in solving global issues long-term.

 […] I would just hope that the recycling stuff is being recycled […] I wonder about where […] it all being exported? Or what is actually happening to it is it just being dumped in the Pacific […]? That is what my only doubt would be

(F6, 24th May 2010)

The data collected for this research offers interesting findings regarding how families deal with excess packaging, waste in the home and recycling. Some also refer to ‘Fair Trade’ and ‘organic’ products in the home and associations with sustainable environmental behaviours. However, such produce can tie in with marketing strategies that influence consumers and portrays an ethos of managing environmental problems. One parent noted her children’s awareness of Fair Trade products and how this can help develop an appreciation of natural resources. Her son, when asked about the benefits of
Fair Trade, associates eating the produce with doing something positive for the natural environment.

Ya and you can eat it and that's Fair Trade!

(F2, 13th May 2010)

As the child is of a primary school age, this trademark recognition is impressive; as it connects a subtle analogy, 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. It clearly identifies the biophysical environment as being mismanaged, its resources being overused but also uses it as a lever to shape consumer behaviour rather than a tool for long-term sustainability.

On the other hand, a term like ‘organic’ can promote responsible environmental shopping habits that link personal health benefits and environmental integrity. This is to be achieved through limited use of pesticides and herbicides. One parent noted the dominant role such terminology plays within vegetable gardens at primary school level. The interviewee, through her personal involvement with structuring the garden, finds that ‘organic’ became a trigger for duty and responsibility. She finds that children see the garden as something they had to do and that because it is organic it is doing good for the biophysical environment. This suggests that being outdoors and growing vegetables is something people have to do for the welfare of the environment within education, the process of growing appears to be of secondary importance.
[Y]oung kids they are incredibly enthusiastic about things you know they love it [school garden] but then there has been a funny reaction to the ‘organic’ thing with the school garden right? […] a few times some of the kids have been ‘oh we have to do this because it’s organic’

(F15, 13th July, 2010)

The underlying concept of the biophysical environment here suggests one of categorisation, separation, responsibility and subtle acknowledgment that there are global problems and that (organic) gardening is one way to address them. That said children enjoy gardening and being outdoors as many referred to what they sow ‘broad beans, peas, potatoes, carrots, pumpkins’, ‘garlic, lettuce, onions’. They talk about how on the last day of school they ate the ‘broad beans and some peas and […] potatoes which were actually very nice’ (F17, F15, F16, 13th July, 2010). However, one particular child while discussing a school garden emphasised how the vegetables ‘are all organic [the] garden it’s organic’ (F8, 17th June 2010). Keeping in mind the wealth of literature and debate on environmental degradation, it could be said that food labelling does not fully deal with that central (environmental) issue. Also with such focus on environmental problems, this invokes feelings of helplessness but what of interconnectedness, and a sense of place for recreation being of equal importance?

6.4 ‘Digging dirt’: Emotional connections, sense of place and the opportunistic child

All environmental educators advocated for children to be outdoors as part of any environmental education initiative. Direct contact and hands-on experiences outdoors is understood by many to play an integral role in developing lifelong connections with the natural world. Unsurprisingly, educators referred to their childhood experiences outdoors as memorable and clearly influential as regards career choice. The way in which many view and observe the natural environment is personal, intimate and makes for an important contribution to their emotional and mental wellbeing. One educator, for

36 See section 4.2.
example, remarked that a feeling of connectedness with the natural world helps answer various ‘unanswerable questions’ about life and humankind. He placed a substantial value on having a close relationship with the natural world which further develops concepts of empathy, connectedness and lifelong benefits to social and physical wellbeing.

[I] have always felt since I was a child that nature is an absolutely fundamental part you know nature appreciation is a fundamental part of our humanity and that our connected nature erases unanswerable questions that are important to ponder

(EE4, 14th October, 2009)

Through his openness and self-reflection he saw the natural world as a place to live but also as an entity that humans are intrinsically bound to. The significance of an intimate connection is also expressed by other environmental educators. While referring to her childhood one educator described her overwhelming sense of wellbeing in the outdoors. She was not a person interested in discos, but enjoyed exploring the outdoors as a child and describes the natural environment as a place for adventures and fun (EE16, 18th February 2010). She distinguished between her rural experiences to those of a ‘townie’ upbringing (ibid). Regional distinctions aside, her concept of the biophysical environment reflected once again feelings of emotional connections, sense of care and empathy. Importantly, this notion of nature as a source of enjoyment did not feature in environmental education literature (see section 2.4).

Just a huge sense of wellbeing connectedness […] I wasn’t interested in going to you know discos or any of that sort of stuff […] we grew up in a big old estate with a river and lovely big trees […] we were off making dens and hideouts and rafts on the river and we were having an outdoor life style we weren’t having a townie lifestyle

(ibid)

37 This stipulates a link to the biophilia hypothesis (Chapter Two).
Being emotionally connected to the biophysical environment was also discussed by another environmental educator. Although more subtle, her description of a childhood intertwined with the outdoors highlights a strong appreciation of the natural environment from a young age as a place to live and to enjoy. The following quote depicts her childhood experiences as a series of outdoor adventures and games whereby learning occurred informally and ‘by osmosis’ rather than through formal, classroom-based instruction. The competition involving eating sloes and the resulting facial expressions described by the interviewee reflects not only the visual quality of a landscape but also the use of her senses to connect to that landscape. Here the outdoors provides vivid and memorable experiences in addition to being educational.

I lived in the country you climbed trees you found birds’ nests you went to the river you poked in hedges you got all your enjoyment out of your environment, what trees were good to climb, how to get down what the birds’ nests were where […] if there was a badgers sett you might hope you might see one or a fox […] you ate everything from the hedges like haws and blackberries, have competitions with sloes could you eat a sloe without making a face!

(EE7, 16th November, 2009)

The use of senses is also discussed by another environmental educator who reminisced about childhood and how the smell of a particular flower, the lilac, brings him to a different world. He offered a description of his experiential education in the biophysical environment which fostered his personal connection with it. The latter part of the following quote highlighted his concept of the biophysical environment as nature as a place to live, emphasising its potential for enjoyment and emotional wellbeing and also happy memories.

I can still smell a leaf or look at a flower and it will bring me back to happy days and happy childhood days I could smell a lilac now and I am in a different world which would go back to the world of your childhood you see and I suppose it is happiness too it’s not alone the physical health but the mental health

(EE5, 22nd October 2009)
Interviews with environmental educators suggested a link between childhood experiences and concepts of the biophysical environment as a place to live and be part of. However, the findings also demonstrated emotional connections, a life-long appreciation, compassion and concern for one’s surroundings. Many teachers also saw the natural environment as a central part of their own childhood particularly those from a rural upbringing. The following quote highlights a notion of feeling in tune with nature, seeing it as a place that contains living things which are deeply connected to humans.

[I] grew up on a farm I grew up nature was all around me it was part and parcel of our lives all the birds, seasons the growing, harvesting […] I would be totally tuned into nature

(SS8, 11th May 2010)

The quote demonstrates that the outdoors was an intrinsic part of her world, it was where she lived and it was within visual range. Another teacher highlighted the impact of such experience on developing a personal and lifelong connection with the biophysical environment. The awareness of plants, habitats, fish and animals in a localised setting are in direct contrast to conceptions concerned with global environmental issues.

[W]e went out and we played we walked we explored castles old houses rivers we fished we made fishing nets you name it we were out and about and we queried trees leaves animals the whole works you know

(SS11, 25th June 2010)

Another teacher when describing the outdoors referred to a sense of freedom. Talking about her childhood and summer memories she remarks ‘God when I actually think of the place we used to go!’ (SS10, 24th June 2010). The natural environment is also understood as a unique place to learn and the quote suggests that such experiences are not the same for children today.
There is so much the children can learn in every situation so in terms of it is very
different [child’s connection] I would have gone (out at) nine in the morning and I could
be out playing, I might come back in for a bite to eat

(SS10, 24th June 2010)

With regard to family interviews, many parents also referred to the positive and
emotional benefits within a particular concept of the natural environment. Children
provided exciting insights as to their own opinions and if they were nervous or shy,
parents often helped the interviewer to ask questions while also answering for
themselves. Therein the majority of quotes are from children and are both insightful and
entertaining as they described local areas as a blank canvas for creativity and self made
challenges. Parents’ observations complemented their child’s contributions where
appropriate. All children discuss what they play when outdoors. The question enabled the
researcher to understand to what extent children play outside38, but also their conceptions
of the natural world. When asked the question on what games he played outdoors a five
year old boy simply replied ‘Star Wars!’ (F6, 24th May 2010). This influence of media
and film entertainment does not suggest a more ‘indoor’ lifestyle but it does highlight a
permeable barrier between indoor entertainment and outdoor creativity. One other child
stated that he also played Star Wars outside and that this was in addition to going ‘down
the field […] we go swimming, we play on the trampoline and we play like Star Wars’
(F12, 22nd June 2010). Within the context of exploration, he and his siblings named a
rocky island close to the house Tracey Island after an island from a television programme
called Thunderbirds. The island has subsequently been (re)christened as Death Star
(moon-sized battle station) from the movie Star Wars:

38 This chapter analyses interviewees’ conceptions of the natural environment only. Comparing and
contrasting childhood connections are discussed in Chapter Eight.
The previous quotes suggest children use what they see on television, the internet or computer games and re-enact it outdoors. Some use the outdoors to replicate battle scenes; ‘I like going outside as well cause we have sticks that we pretend are guns and we play army games’ (F10, 17th May 2010). The (re)naming of the rocky island, for example, illustrates a value placed on it as part of the children’s own environment. Hands-on experiences and outdoor games also helped children to develop a sense of place and belonging, observation skills and an appreciation of the outdoors as a playground. One child living on an island on the west coast of Ireland demonstrated this when describing the jellyfish often found on the beach:

[T]here is lots of jellyfish […] one time the whole beach was lined with jellyfish and everybody was just playing with them […] the brown ones aren’t good but the pink ones and the light ones are fine

(F14, 13th July, 2010)

The descriptions coincide with a place to play and suggest that children see the human and nonhuman world as being connected or intrinsically bound to it. Children illustrated that they do not necessarily identify with concepts of ‘the environment’ or ‘nature’ but rather focus on developing games when outdoors. Ingenuity also emerged with respect to building or constructing various hideouts in the garden. One child mentioned building forts and dens and had his own clubhouse in the back garden (which the researcher got a tour of) which demonstrated a hands-on approach and regular time spent outdoors. He described it as a ‘hideout or something’.

Well, the clubhouse is just the bush and there are loads of entrances and exits

(F3, 19th May 2010)

When asked why they liked playing outside, one child from a separate interview replied that ‘we like to go free’ (F8, 17th June 2010). This suggests that children not only play games but also regard as something positive and beneficial to being outdoors. Their
natural surroundings are observed not only for games but using their senses and observations to identify particular materials. Many created their own worlds within the parameters of where they live. Arguably, it is such opportunities that are the early stepping stones to sustainable environmental behaviours into adulthood. Importantly, this is in contrast to the general perceptions and arguments in literature as to childrens lack of awareness and (dis)connection with the natural environment.

Overall the examples shown in sections 6.3 and 6.4 lead to a significantly expanded view of how those actively involved in environmental education perceive the natural environment. However, the connection between this extensive examination of data and current research is rare having only a tentative foothold with regard to becoming a common source of information in mainstream environmental education research. It is possible for this approach to develop as the proponents easily inform but are also at odds with trends within contemporary educational practices. Table 12 presents the at times limiting but also expansive underpinning concepts of the natural environment that emerge from analysis of empirical data.
Natural Environment

<table>
<thead>
<tr>
<th>Concept that emerges...</th>
<th>Description</th>
<th>Influence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anthropocentric</td>
<td>An object that is a separate entity to the human world, exploitation of natural resources and pollution for human consumption</td>
<td>Profession, educational background, individual experiences, primary school education, media, concerns for global environmental issues, consumer behaviour, environmental attitudes</td>
</tr>
<tr>
<td>Resource management</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Responsibility</td>
<td>A separate entity or nonhuman world that can also be intrinsically bound with the human world, sense of connectedness, belonging, empathetic, a place for recreation, emotional wellbeing</td>
<td>(as above) Childhood, unstructured and unsupervised time outdoors</td>
</tr>
<tr>
<td>Holistic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cultural</td>
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<td>Communal</td>
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<tr>
<td>Emotional</td>
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Table 12: Emerging concepts of the natural environment from empirical data

6.5 Conclusion

Findings presented in this chapter shows that environmental education research ought to give greater consideration to what shapes peoples understandings of the natural world. This would ensure the development of appropriate and relevant environmental education as a curricular strand or outsourced programme. This chapter brings to light new evidence as to how children, parents, school staff and environmental educators distinguish between the concepts of the environment and nature. That said these distinctions can sometimes be blurred and/or contradictory. In some instances, defining either concept was problematic as interviewees merge both, use other terms such as ‘landscape’, or else are unaware of conceptual diversity. Environmental educators, for example, when discussing the natural environment reflect on people’s (dis)connection and the associations with continuous misuse, mismanagement and ignorance of environmental resources. School staff, appear conscious of a (dis)connect and lack of knowledge between children and their natural surroundings whereas parents and children focus on solving issues and express personal responsibility to do so. Some believe this
can be done through consumer behaviour, for example, purchasing food with little packaging, and choosing Fair Trade or organic produce.

On the other hand, the biophysical environment also conjures up thoughts of wild ‘natural’ spaces, demonstrating fluidity between humans and the nonhuman world. Environmental educators reminisce about first hand experiences in nature as children which prompt not only fond happy memories, but a sense of belonging and life-long emotional connections to the natural world. Educators and school staff refer to the benefits of being outdoors and the opportunities for self-made challenges and adventure.

The chapter highlights children’s ability to use simple materials from their immediate surroundings to develop games and connect with their environment. In contrast to general environmental education literatures, the family interviews reveal that children regularly engage with the biophysical environment, developing a sense of interconnectedness through hands-on experiences, building forts, climbing trees, and using materials found in nature to play games.

Perceptions of the natural environment as expressed by interviewees can inform and enhance leaner’s experiences of environmental education. Interestingly, many participants allude to generational differences and how childrens relationship with the natural world has altered in recent decades. A dominant argument within research and general discourse it is crucial for environmental education to empirically investigate to what extent this is true, and in the context of Ireland. If so, what are the implications for environmental education and what role do interviewees believe it can play in (re)connecting children with their natural surroundings?
Chapter 7
Disconnect, reconnect or…..misunderstood?: Evidence from empirical data

7.1 Introduction

Considering environmental education’s argument that children in modern society are (dis)connected from the natural environment it is crucial to critically analyse the disconnection hypothesis across all three interview groupings. This investigation reveals interesting contradictions within research as it emphasises the voices and opinions of children within an overall context. In doing so this chapter provides new evidence for environmental education research, wider sustainability debates and general discourse.

Section 7.2 seeks to ascertain interviewees’ understanding of children’s disconnection from the natural environment. A critical analysis finds the relationship between children and the natural world to be complex and evidence from children sheds new light on the dominant arguments underpinning a disconnection. This valuable insight explores common assumptions and inaccuracies that coincide with educational ideologies and theories within the field. The analysis is of particular importance considering Section 7.3 investigates interviewee’s experiences of environmental education at primary school and the influence (if any) of a child’s (dis)connection on the subject’s prioritisation. Though opinions differ as regards environmental education in school, the data reveals a number of issues relating to its ineffectiveness previously overlooked in research. Section 7.4 evaluates and presents an innovative model that highlights key finding that emerge from this chapter.

7.2 Disconnect and perceived implications for children

The findings from many adult participants suggest that unlike previous generations children are disconnected from the natural environment (Chapter Six). The influence of generational differences, changes in the physical landscape and the modernisation of
society can shape people’s perceptions of this relationship but the way in which children respond to their natural surroundings are not taken into consideration. This argument is not new within environmental education research (Chapter Two) however, a critical analysis of what a ‘disconnect’ means for children and the implications for environmental education is overlooked. Considering the new evidence that emerged from children thus far in this thesis, could further analysis show this (dis)connection hypothesis to be misguided? Is important to critically examine the views of environmental educators, school staff and parents to ascertain how they define a (dis)connection, what it means for children, and wider society-environment relations. In doing so this section analyses data not only to understand what concepts underpin a (dis)connection but also what it means for environmental education.

[A] whole generation being totally disconnected from the natural world I think there is massive dangers in that not the least of which would be decision making at a later stage where people would perhaps see the natural world as a back drop to human affairs to the extent that anything that is wet and potentially dangerous is drained, rivers are straightened and made safe, canals, trees are eliminated in case there is some pedophile lurking in there, that everything is sanitised with green lawns, without any grasshoppers and butterflies songbirds you know?

(EE4, 14th October, 2009)

In the previous quote, an environmental educator discussed the negative implications of childrens (dis)connection from the natural environment on environmental sustainability. He argued that as adults they are ill-equipped to deal with growing environmental problems and show ambivalence towards environmental decision making processes. Connecting the impact of a (dis)connection in childhood to wider society-environment relations also causes concern for other educators. Some highlighted the importance of local environmental knowledge for environmental sustainability yet they found that many children spend less time outdoors, and more time under supervision or involved structured activities. From the outset one educator criticised parents for being overly-cautious and protective of children. She found that many play a key role in preventing children to learn at their own pace as parents ‘are completely paranoid about them
(children) being abducted or hurt or injured, and kids aren’t even allowed to learn by themselves’ (EE16, 18th February 2010). The increase of adult supervision and growing fears over childrens safety are significant as one educator states, ‘children are very much guarded and they can’t go here and they can’t go there’ (EE3, 8th October 2009). Another educator acknowledged that roads may be more dangerous for children to walk on in recent decades but that car use does appear excessive. He found that overzealous safety issues inhibit children’s access and but also their opportunity to spend time in the outdoors, ‘children are ferried everywhere to and from school, they don’t walk anywhere I know it’s more dangerous now but I think it’s a little over done’ (EE3, 8th October 2009).

The argument that childrens mobility is restricted and controlled is not new within environmental education research; however, what is significant is that children feel uncomfortable when they are outdoors. Being (dis)connected infers a lack of environmental awareness but also feeling ill-at ease in ones natural surroundings. As the following quote suggests childrens involvement with structured, supervised activities can limit the opportunity to develop knowledge, awareness and appreciation of their natural surroundings.

I think their freedom is curtailed in the sense that […] their play is structured; they are brought to so many activities outside of school, that they are all timed and collected. […] I’m going round to schools and you’ll find that the children come from a base of nothingness they don’t know anything about what lives under stones, they could say a turtle or a crocodile a lot of them would give outlandish answers because, they are not connected with the world around them they are not comfortable with it

(EE5, 22nd October 2009)

The emerging concept of (dis)connect can also imply that an indoor and structured lifestyle affects the development of children’s imagination and also missing out on the emotional, mental, physical cognitive benefits of being outdoors. As one educator stated,
'I don’t think that children have the time to be imaginative and to engage themselves’ (EE5, 22nd October 2009). Another educator stated that children need time to unwind and importantly, learn how to be in their own company. Here she maintained that a balance ought to exist between structured and unstructured time so as to encourage the development of social and cognitive skills. Being ‘connected’ associates with physical and emotional wellbeing as well as developing an intimate knowledge and appreciation of the natural environment. According to the interviewee being outdoors helps children unwind, but found that this occurs only when they are ‘brought’ outdoors by adults.

[S]peaking from my own experience I mean my kids would go out a lot but that is because they are brought out […] they need time to relax, they need time to come down, they need time to like have normal social interaction instead …outside a structured sort of thing

(EE10, 29th January 2010)

One educator described an osmosis effect whereby children learn about the natural world through informal play (not supervised or directed by adults), using their senses and taking part in unstructured outdoor activities. In this way he felt children have the opportunity to learn at their own pace but also develop personal interests, knowledge and familiarity as to different plants, animals, and insects. The quote again criticised protective parents and promotes more firsthand child-led encounters in the natural environment. The educators found that this approach is educational, experiential and more meaningful for children as they choose how to interact with the natural environment. He promoted self-led discovery as an ideal approach to enhancing children’s understandings and connection with the natural world. However, he stated that such opportunities have diminished and suggests that the value of experiential learning for children is ignored or overlooked by parents.
[T]here is an osmosis process in my view where you learn things just by being connected to nature you know the wind in your face, getting wet, seeing the seasons change in the trees, finding a dead hedgehog on the side of the road, picking blackberries, finding birds’ nests all those things are direct connections with the natural world. Most children are very hither and dither by caring, concerned, worried parents wanting to expose them as much as they can to the different skills and opportunities that are there but forgetting that learning is often a solitary process and that you learn by just seeing those things and being in contact with the natural world.

(EE4, 14th October 2009)

The perceptions that parents overlook the importance of children being connected with the natural environment does not necessarily take into consideration the influence of wider developments in society. In recent decades the social and cultural landscape of Ireland has changed and one educator explains the impact of the Celtic Tiger era on her rural community. Changes in socio-demographics, economic profile, (sub)urbanisation and alterations to the physical landscape (infrastructure, housing estates, business premises) means some are now unfamiliar with who lives in their community. In her opinion one educator found that this can also negatively impact childrens access to roam and explore. Social and cultural changes also arguably influence an increase of parental fears and safety concerns whereby children spend more time indoors and under supervision. The quote implies that these wider developments influence a perception of fear on the part of parents which subsequently affect how and in what way children can connect with the natural environment.

[M]aybe it’s a change of different population in there a different social and economic structure to a population as well you know we are not the locals the farmers all the people who have probably moved into A* are mainly professional people you know and you will see that in the census we have completely changed the socioeconomic profile of that area and […] (it is a) completely different world to what they were 20-30 years ago39

(EE10, 29th January 2010)

39 * - all interviewees are anonymous.
Teachers also referred to adult supervision and structured activities but in particular that technology is a major contributor to children’s (dis)connection with the natural environment. Many suggested that it is the combination of both that dictates the way in which children spend their (spare) time. One teacher stated that when children are inside, parents tend to relax as children are then out of harm’s way and parents ‘know they are safe’ (SS6, 10th May 2010). This suggests that parents tend to be both fearful and apprehensive as to their child(ren)’s whereabouts. However, the same teacher also cited a possible distrust between parents in childrens ability to navigate risk and potential dangers. The concerns surrounding the amount of time children are engaged in technology, the influence of the media and parental supervision appears to be negative in terms of children’s mobility, self-development and decision making processes. This coincides with the views of environmental educators’ who feel the natural environment provides important opportunities for physical, social and cognitive development.

I suppose [as a] society in general, we are not as trusting of the children as we were so we prefer to know that they are in a room playing the PlayStation. We know they are safe there but if they are out cycling their bike on the road we would be a nervous wreck so maybe it could be just as much the parent’s fault as it is media, and just the way society is going I suppose.

(SS6, 10th May 2010)

On the other hand, when given the option to go outdoors after school some children opt to remain indoors. When the weather is fine, one teacher gives no homework to the class to give them an opportunity to spend the afternoon outside. When she asks students what they did the next day the majority say ‘I was on the Nintendo DS or I watched TV […] I went outside on my bike sometimes, but more often than not it is an indoor activity’ (SS5, 7th May 2010). She suggested that the popularity of technology and its ability to absorb children’s free time irrespective of having no homework and good weather is a concern. One teacher remarked that if a child spends a lot of time engaged with technology (computer games) it can manifest itself as pent up frustration which then translates to behavioural issues in the classroom. This research project is not investigating
behavioural issues in children however; the quote suggests a connection between indoor and technologically engaged children to behavioural difficulties at school. Here the teacher found that that being outdoors can alleviate such issues as it gave children the opportunity to expend energy, get physical exercise and fresh air.

[I]f kids play with computer games a lot you can nearly see the built up kind of frustration in them […] And often if there is a child who is experiencing difficulties or behavioural issues, often it’s not going to be the cause of it but it certainly isn’t helping it you know where as if those kids were brought out into nature and on a Sunday afternoon brought out for a 3 mile walk or whatever it just gets rid of this energy and the pent up it can be a help to it!

(SS1, 29th April 2010)

Interestingly, some parents acknowledged being too preoccupied with safety issues but explain that broader social issues that influences them in keeping their children indoors. One parent, for example, stated that information on the ‘more sinister things in the world have made us more protective’ in present-day society (F3, 19th May 2010). This particular parent discussed how some find the world safer because of the influx of CCTV cameras, though it does not alleviate parental fears as she states, ‘but we still wouldn’t let our children out!’ (ibid). Although she did not like the idea of being watched, as a parent she finds it a comfort. The presence of cameras has in her opinion, helped in ‘solving a lot of crimes and mysteries’ (ibid). Another parent also referred to this ‘stranger danger’ fear and suggests that unlike previous generations, security is a real issue. Although disappointed, she believed that a sense of fear perpetuates a cycle of resistance to not allow children outdoors unsupervised.

[I] don’t think the kids have the same amount of freedom […] that it is not good but that’s just the way it is […] I don’t know how safe it would be you would be more conscious of who is around now than before you know

(F11, 22nd June 2010)
Another parent discussed the impact of living in a (sub)urbanised area and expresses disappointment that her son ‘doesn’t have the freedom in an urban setting’, and finds that she is ‘always very aware where they are and who they are with’ (F6, 24th May 2010). Importantly, she put the onus on herself as a parent to facilitate time spent outdoors, stating that ‘it's our responsibility to make sure that they get out’ (ibid). She found that as a parent she is the primary educator but that providing hands-on experiences outdoors for her children is challenging. One parent stated she would ‘be nervous leaving them (children) walk on that road’, as it is too narrow and with constant traffic (F5, 20th may 2010). Another parent found that living in a housing estate does not necessarily impede access to the natural environment but travelling by foot or bicycle beyond the estate is stressful and potentially dangerous for her children. She acknowledged that children are ‘driven more places and they are chaperoned’ to different events but felt that the infrastructure between the estate, the local school and to areas of local natural interest suit motorised transport only. This limits children’s mobility and an excessive speed limit sign in the area means she transports her children by car. Though efforts were made to lower the speed limit in the area, according to the parent, the local authorities did not cooperate, finding ‘it was kind of a by road not a main road and sure people would slow down anyway’ (F7, 1st June 2010). This example demonstrated the motivation of a parent to provide the opportunity for her children to explore outdoors. It also highlighted the influence of infrastructure and urban design on children’s access. However, it also suggests individual responsibility more so than that of wider society to provide opportunities for children to access and spend time outdoors. That said another parent remarked that the majority of parents do place a value on outdoor play for children but that it is not enough to alleviate worries regarding risk, health and safety. Findings suggest that parents could also feel overwhelmed and powerless to change any number of the discussed issues by keeping their children close by and within visual range.
I think most parents do realise how important it is […] I think we should work hard to make sure […] that they are familiar with nature but a lot of modern parents like to have them in and are happy to have them watching tele as long as they can see them and they know they are safe they think they are content with that

(F14, 13th July 2010)

The evidence from children interviewed for this research is in direct contrast to findings from environmental educators, school staff and parents. Many children illustrated quite clearly a meaningful connection (exploratory, investigative, and self-led) with the natural environment.

Regarding children’s restrictions and constant supervision, for example, one child living on a island off of the west coast of Ireland surmised that ‘we wouldn’t really need to tell everybody where we were going we […] just go off and play with our friends, our parents wouldn’t have to worry about us as much’ (F14, 13th July, 2010). The quote described spending unrestricted time outdoors roaming the island with limited supervision. Here, she demonstrated that not only is the natural environment a place to play and explore but importantly she highlighted the ease of accessibility and parental permission to do so. The quote also shows familiarity with being outdoors, which she acknowledges is not the same for all children ‘no, we are lucky here ya’ (ibid). This is of particular interest as it suggests her experiences (according to her) could be an exception while also highlighting an awareness and empathy towards those without. Another child living on the island described a similar picture. In groups children decided where they go and what activities to play. The following quote highlights the opportunities for children to develop social and cognitive skills, co-operation and learn by osmosis about their natural surroundings. Unlike arguments within environmental education research and
those that emerge from the data thus far, here some children interact and respond with the natural environment which is comparable to adult interviewees.40

[W]e had like a tree house up the hill, it was really fun, and we just mess about on the beach. (We go) cycling and meet up with everybody and then go swimming in the summer time jumping off the pier

(ibid)

As previously examined in this section many parents show concern as to the negative impact of children’s health and safety. As the island is small the majority of parents tend not to worry about safety issues with the exception of the sea. As one parent points out, overall ‘it’s kind of safer here, not too many cars so long as nobody goes near the sea it's not dangerous at all’ (F18, 13th July 2010). Arguably dangers of the sea are very real particularly for the fishing community on the island. One parent explained that many ‘of the fishermen, the older age wouldn’t be able to swim’. When asked why she replies ‘I hear some of them saying that it's better cause it a quicker death’ if they fall overboard (F16, 13th July 2010). This shows not only the precarious work of fisherman but also the life threatening conditions that can and do arise when at sea. On the other hand, one child portrayed an intimate relationship with her natural surroundings and although aware of the dangers of the sea she observes the habitats of mammals and birds. She knows where to spot dolphins on the island, where to find seals and can tell different birds apart by their body and beak colour. The quote demonstrates that safety issues do not necessarily influence all parents but rather on the island there is a trust placed on children to navigate through and around potential dangers.

40 Section 6.4 adults describe regular time spent outdoors as children.
There are dolphins beside the boats and there are [sic] seals out where the fish are in cages and there is a load of white birds with black beaks down the cliffs (ibid)

Children from the rural island paint an idyllic picture. There appears to be an understanding between parents and child as to the dangers and they are cautioned more so than prevented from swimming. However, is this picture an exception to general discourse surrounding children’s (dis)connection? Considering the majority of environmental education research and indeed the qualitative data collected for this thesis state that children are disconnected further investigation is required. This is not only to examine the potential influence of location\textsuperscript{41} but more importantly whether the extenuating factors as described by adults are reflected in other evidence from children.

What is interesting is that children provide a unique and often endearing perspective of how and in what way they interact with their natural surroundings. Some have described different games and activities they play whilst demonstrating an in-depth knowledge of different insects, flora and fauna in their local area. Importantly, they did not mention fear, uncertainty, boundaries or restriction placed on their mobility. What does emerge is that the quality and quantity of time outdoors may have changed overtime but irrespective of rural, (sub)urban location, how children respond and engage with the natural environment is similar in meaning.

Three siblings living in a rural community (mainland Ireland), described a similar picture to children from the island. Here the children create games using materials found in their wooded garden\textsuperscript{42}. Together they play shop by trading moss and making smoothies (plastic bottles filled with sawdust), between one another, and use leaves as money. The

\textsuperscript{41} Families interviewed live in either rural or (sub)urban locations. As the recruitment of families was voluntary the location of households was random.

\textsuperscript{42} See Appendix J for images of garden.
children’s father encouraged them to use the leaves are rhododendron as the species was taking over the garden. In addition, to developing their imagination outdoors, this example illustrates an intimate connection as it shows regular, explorative play within the parameters of their home and close to parental guidance.

We have bottles […] we would fill it with sawdust and we make a smoothie […] we would […] set up a little shop and sell it like with leaves […] and we went up in the woods there and we each have a shop and I sell moss and Kevin* just sold everything and May* had a restaurant

(F10, 17th May 2010)

Other children living in rural area also shares similar descriptions. One particular child whose family lives close to the sea listed a number of activities including climbing trees, bouncing on the trampoline, re-enacting a scene for the film Star Wars. The play is changeable, imaginative, active and self-led. It is difficult to ascertain from the quote the level of parental supervision, however the list of games shows variation but also a sense of enjoyment. The quotes suggests regular unstructured time outdoors that is not necessarily limited by physical boundaries.

[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

(F12, 22nd June 2010)

Another child described various materials that help him re-enact and modify games he sees on television or computer games, for example, battles scenes; ‘I like going outside as well cause we have sticks that we pretend are guns and we play army games’ (F10, 17th May 2010). Other children recreated games, a five year old boy living in a (sub)urbanised area, for example, when asked what games he plays when outside simply replied, ‘Star Wars!’ (F6, 24th May 2010). This particular child lives in a large housing estate and his

43 All participants are anonymous.
mothers stated ‘I would regret for him that he doesn’t have that freedom in an urban setting you are always very aware’, highlighting a more restrictive childhood and concerns as to her son’s safety (ibid). On the other hand, her son when asked what his favourite ‘creepy crawlies’ (insects, spiders) are, he replied that they are spiders and stag beetles. His quote demonstrated observation skills as well as imagination with regard to how a spider catches its food and recognising the defensive armour of the beetle. The concerns described by his mother do not appear to impact the quality and learning experience for him when outdoors irrespective of the physical landscape or infrastructure.

[M]y favourite one would be a spider […] because they can make webs and catch flies […] also because they shoot out a thing and they can swing off […] I also like stag beetles, because they have these kind of claw things. I also […] like bees, because they make honey and they fly around the place

(F6, 24th May 2010).

Another child discussed butterflies and described its lifecycle. Here, she explains what happens to a caterpillar as ‘it goes into a cocoon and then it grows wings’ (F7, 1st June 2010). When outdoors she also enjoys being on her bike, in the garden looking after the family’s vegetables and observing different plants, insects and ‘rabbits’ (ibid).

Interestingly, her mother found that living in a housing estate gives children space to explore outdoors, she states they have ‘a lot of freedom, they have a boundary they can go to on the estate, I kind of keep an eye on them’ (ibid). As a parent she felt comfort in being able to see where her children are by looking out the window towards a designated green area in the estate. She saw the design of the estate as providing better opportunities for children than other locations such as a city or one off rural housing. She explained that ‘growing up in the cities parents would be a lot more aware or one off rural houses, I think they (children) have no freedom’ (ibid). This is an important statement as she acknowledged a sense of freedom for children when outdoors but that this could be influenced by her perceptions of what is safe and within a particular area. However, her child(ren) though living a more restrictive environment to that of others, for example the
rural island, illustrated similar observations and experiences to them as a consequence of
direct contact with flora and fauna.

Children also showed familiarity as to certain species found in a nearby woodland but
also regularity of such encounters. Some distinguished between species according to
colour, for example, butterflies, as one child states ‘sometimes when we go down the
woods we see butterflies, there is a white butterfly’ (F3, 19th May 2010). His mother
stated that ‘we just walk over and it takes us about forty minutes to walk’ on their way to
a local swimming pool (ibid). It is on this route that her son saw ‘feathers, there are also
doves there’ and collected conkers for a nature table at school. Though the walk is
organised and supervised by his mother, his experiences and knowledge derive from a
curiosity and interest of the natural world. After the interview the researcher is shown his
‘nature backpack’ which included plastic binoculars, a compass and torch44. An interest
in the outdoors is supported and arguably guided by his mother. However, comparable to
other interviewed children his descriptions and awareness share similar characteristics;
enjoyment, a sense of curiosity and being outdoors as educational.

Children did not only see and observe a species but also how it feeds and survives. There
were ample opportunities for some children to explore the outdoors with limited
supervision though the parent plays an educational role also. The fields and back garden45
of one family stimulated the children’s senses and curiosity (similar previous quotes that
illustrate a meaningful connection with the natural world). The children have favourite
animals, for example, the girl states that a squirrel was her favourite ‘because they are
cute’. When asked what two types of squirrels live in Ireland, she replied ‘grey one […]
red one’ the latter being her favourite (F5, 20th May 2010). This answer is of interest as it
highlights her knowledge of non-native (grey) and native (red) squirrels in Ireland. Her

44 See Appendix J.
45 See Appendix J.
ability to identify and distinguish between the two suggests familiarity and also empathy towards their welfare. Her brother shared a similar outlook stating that rabbits are his favourite animal ‘because they always bounce around’ (ibid). It is probable a rabbit is a familiar sight for the children considering the girl has often seen other animals that venture into the garden, she ‘left a carrot outside cause there were lots of hares’ (ibid). Living in a rural area the children often explored and roam in the adjacent fields. Throughout the interview different birds, plants and animals are mentioned particular by observing what lives in their garden – an area they explore on a regular basis.

What this evidence reveals is that the concept of ‘disconnect’ is complex yet invariably misunderstood. The assumptions of adults and research overlook the social, intellectual and emotional responses that do exist between children today and the natural environment. The quotes from children illustrate that irrespective of generation, the natural environment still captures their attention and creativity of children showing an intimate connection. The influence of parental supervision can limit childrens opportunities but what the data highlights is that once outdoors children are active agents in learning, investigating and discovering their natural surroundings.

Environmental educators and school staff infer that technology, structured activities, a lack of trust in children, and overprotective parents, contribute to an indoor childhood. Parents to a certain extent agree many are overly-cautious but explain that various factors, for example, inadequate infrastructure that perpetuate precautionary measures. The preoccupation with a disconnection does not take into consideration children’s ability (or curiosity) to connect with their natural surroundings irrespective of input from adults, an environmental education programme or specific educational outcome in mind. The disconnection hypothesis is in many ways a misguided argument as it overlooks the importance of talking with and observing children in the natural environment.
Figure 6 presents these key findings from this section including the analysis of interviewees’ perceptions and questions to what extent children’s (dis)connection is actually understood. This is reflective of questions raised in Chapter Two regarding assumptions in the literature that children are disconnected from the natural environment (Louv, 2005, Malone, 2007, RSPB, 2013). What is interesting is that the voices of children reveal alternative ways of viewing a ‘connection’ (further discussed in Chapter Eight). This poses a further question, is environmental education tying to recreate a particular type of ‘connection’ that is not necessarily relevant to children today?

7.3 Environmental education and primary education: Misguided efforts overtime?
The tension between the disconnection hypothesis and environmental education is a concern particularly as regards enhancing children’s relationship with the natural environment. Evidence from children show contradictions and interesting aspects to the ‘(dis)connect’ debate, not least with regards to the stated motivations and objectives of environmental education as outlined in Chapter One and Chapter Two. According to
participants does environmental education influence (their perception) of children’s (dis)connect? To address this question a thorough investigation is required which draws on interviewees experiences of environmental education in primary education and its influence (if any) on their connection with the natural environment. 46

It is interesting to note that many interviewees state that environmental education is now part of a child’s primary education unlike previous generations. One environmental educator, for example, stated that ‘there are nature classes in all the schools’ while another educator remarks that environmental education is more prominent in the curriculum, ‘there seems to be a lot more it now, in the curriculum now and it's emphasised and all that’ (EE3, 8th October 2010, EE14, 17th February 2010). Importantly, the majority stated that environmental education was not part of their primary school education. One interviewee claimed that environmental education was totally absent at school, ‘no definitely not, none what so ever in primary school’ (EE3, 12th October 2009). Another remembered occasional field trips where the class looked at different plants around the grounds of the school, ‘I remember a couple of times going out and planting plants in the garden […] wouldn’t have been a huge emphasis on it or anything’ (EE14, 17th February 2010). It is interesting to note that those, whose career revolves around educating children about the natural environment at primary level, did not experience environmental education in their primary education. One educator remarked that if there was an emphasis on environmental education ‘there was nothing in it specific’ and that it just ‘reinforced the experience you were having outside in the fields and woods’ as a child (EE6, 27th October 2009). This is important as it suggests that children after school hours spent a significant amount of time outdoors and that assumptions were made by those in education that children already knew about the natural environment.

46 This links to findings within primary curricula (140 years) that illustrate environmental education was marginalised (section 4.2).
On the other hand, one environmental educator did remember an influential teacher who used good weather as an opportunity to take his class outside. Though not specifically focused on environmental education the opportunity stimulated the educator’s interest in the natural environment by observing different habitats as the class walked along a river bank and through nearby fields.

[T]he school master at school which wasn’t known at the time, he used to take us out during the day on a good summers day, I think it was to knock the devilment out of us, down the river down through the fields so plenty of walks

(EE11, 1st February 2010)

The previous quote appears an isolated case as another educator discussed having a nature table in the classroom where pupils brought in various items such as, conkers, leaves or a bird’s nest. The table appears to have been more for display purposes than used as a practical educational tool. There is no mention of it being part of curricular lessons, being integrated into class discussions or as an education tool to engage children with the natural environment.

[S]chool would have been the very basic nature studies, you brought in the conkers and collected leaves, if you came across a bird’s nest you brought that in, or if you went to the beach you collected shells […] put it on the nature table and everyone can look at it and share it or whatever, but we didn’t speak about it

(EE1, 28th September 2009)

School staff described similar experiences as one teacher states she never experienced environmental education while at primary school, ‘we didn’t ever do nature in school’ (SS8, 11th May 2010). References to a nature table also emerge as another teacher describes the presence of one but that it was not integrated into class lessons ‘I remember there being a nature table in the classroom and being told things […] that there was very little else’ (SS5, 7th May 2010). However, one teacher interviewed did mention taking
part in various class projects that focused on the sea, marine life, trees and other plants. Her quote shows how some schools did use local habitats as an opportunity to teach environmental education on a more regular basis.

I was in a really good school for that (environmental education), we were beside the beach so we got to on trips to the beach and learn about little things on the beach and stuff like that, but I know we used to do projects on trees and stuff

(SS7, 10th May 2010)

The school staff were of the same opinion to environmental educators stating unlike their own primary environmental education, it is very much part of a child’s education today. They discussed a wide range of educational tools that make environmental education more hands-on, educational and memorable for children. One teacher found that the advancement in technology as a teaching tool and resource particularly interactive whiteboards are helpful ‘where at the touch of a finger tip you can find what you are looking for’ (SS11, 25th June 2010). By using the whiteboard the class can clearly see different images, videos and information collectively. Instead of working from pictures of trees from books children are now going outside to look at trees, take part in bark rubbings and add to the experience by doing quizzes when indoors. As another teacher stated that:

I think it’s more hands-on now it would have been done from books more […] and you would see the picture of it or […] colouring it in whereas now ‘this is the tree’ […] they would be doing bark rubbings and maybe little quizzes about the trees and different things like that

(SS3, 29th April, 2010)

The movement away from nature tables to a more hands-on approach to environmental education as described by teachers and environmental educators appears positive. The contrast between their experiences and children today highlights a development of the
subject and efforts for it to be taught in a comprehensive way within education. Some parents were in agreement stating that their experience of environmental education at primary school ‘wasn’t at the kind of level that it is at now’ and remember only ‘doing a little bit about nature tables’ (F12, 22\textsuperscript{nd} June 2010, F4, 20\textsuperscript{th} May 2010). Another parent felt that the teaching of environmental education, ‘it's not just something out of a book […] last year they went on a bug hunt’ (F7, 1\textsuperscript{st} June 2010). This also suggests that children now engage in more regular environmental education that is experiential and fun in its approach.

The evidence from adults shows inconsistencies and the irregularity of environmental education during their primary education. The quotes also imply that many in the teaching profession assumed children already knew about the natural environment, therefore environmental education was not a priority or taught on a regular basis. One parent stated that many teachers often overlooked environmental education as, ‘it was kind of taken for granted […] it was just assumed that we knew a lot about nature’ (F6, 24\textsuperscript{th} May 2010). Therefore, environmental education was something that occurred after school hours and not part of a child’s formal (environmental) education - unless a school or teacher had a specific interest in the subject. What is interesting is that many suggest that previous generations were more connected with the natural environment which possibly contributed to the marginalisation of the environmental education at school. However, as many argued children today are disconnected, environmental education appears prioritised to reconnect them and compensate for the lack of time spent outdoors. Evidence from children suggests the position of environmental education remains unchanged. Answers from children portrayed a nuanced picture of environmental education as regards content, regularity, impact and effectiveness in primary education today. One child, for example, when asked if he was taught environmental education at school replies, ‘sort of’ and that his class ‘learn about different animals and like in poor countries and stuff’ (F5, 20\textsuperscript{th} May 2010). Another boy when asked a similar question said
'the only outdoor thing at school I do is soccer’ (F9, 22nd June 2010). One child simply stated ‘No’ in answer to the question (F2, 13th May 2010). The quotes suggest that across different school settings environmental education appears irregular, has little impact or that its purpose is not fully understood by children - the reference to ‘poor countries’ implies that to some environmental education revolves around environmental responsibility (global) more so than environmental appreciation (local)⁴⁷.

Similar to previous generations it appears nature tables are used for display purposes rather than as a teaching tool or resource for both teacher and student. One child when asked if he is taught environmental education at school, stated ‘em not much but we have got a nature table and we learn about the butterfly and we have got a dead one in a tin’ (F3, 19th May 2010). When asked what else is on the nature table he replied ‘there used to be a butterfly wing and some conkers but the newest things on it are egg shells from birds’ (ibid). The interest of the teacher and child as to the contents of the table is clear. The addition of new objects are encouraging however, there is uncertainty as to what extent it is integrated into subject areas or curricular strands. On the other hand, some children do described having environmental education at school though often give short answers when replying, ‘ya a lot’ or ‘ya’ (F11, 22nd June 2010, F17, and 13th July 2010). When questioned further, another child stated ‘we just learned about dolphins today’, while his brother says ‘we learn about different types of trees’ (F13, 22nd June 2010). Another child remarked that ‘we have a school garden’ and lists various vegetables that are growing ‘lettuce, onions, broad beans, peas, pumpkins, potatoes, garlic’ to name but a few (F15, 22nd June 2010). The data from children clearly shows that the prioritisation of environmental education is dependent on an individual or individual teacher. This is in contrast to the views of adult interviewees who suggested that environmental education has improved in recent decades.

⁴⁷ Coincides with findings from section 6.3.
That said despite the evidence from adult interviewees as to significant positive changes of environmental education today, a number of criticisms emerge including a need to improve the standard of environmental education in primary schools today, arguably driven by concerns as to children’s (dis)connect. A number of environmental educators remarked that regular environmental education is ‘very dependent on the school some will have very little done’ (EE10, 29th January 2010). She highlighted issues within the education system that impede regular environmental education such as, curricular pressures, inadequate teacher training and/or teacher interest in the topic.

[I]t depends on the teacher you know what training the teacher okay […] it depends on their own interests you know what they have looked up there will be some and they will know loads about it and you are going well what am I doing here! And then there are some who just don’t know anything

(ibid)

The quote also highlights from an environmental educators point of view a number of background issues that hinder environmental education being taught through formal education. Another educator implied that teachers are ill-equipped to teach the subject and greater efforts ought to be made in teacher training colleges. He stated: ‘[Y]ou have to actually educate the teachers and […] you have to encourage them’ (EE8, 18th November 2009). Another educator who is also a lecturer in a teacher training college stated that ‘it would be very rare to see a student that would have a [sic] knowledge of the world around them’ (EE5, 22nd October 2009).

The findings from empirical data in this section describe clearly the responsibility and expectation placed on environmental education to educate children about the natural environment. However, its effectiveness is undoubtedly questionable not least regarding misguided understandings of children’s disconnect and the expectations placed on environmental education to bridge this gap. Some accounts from children are not different to those of adults whereby environmental education comprises of a nature table
in the school environment. Children also highlight a lack of definition as regards the purpose of environmental education at primary school, with some describing it as planting vegetables, going on a bug hunt or learning about dolphins. All are aspects of environmental education yet their impact appears similar to depictions described by adults and their primary education.

7.4 Conclusion
This chapter reveals new evidence for environmental education research. It finds that without a critical understanding of what a (dis)connection is and environmental education overlooks and underestimates children's ability to engage with and connect with the natural world. The role of environmental education is not only to teach but also facilitate and learn from children about how they connect with the natural world. Describing children as being completely disconnected is arguably inaccurate as it undermines children's ability to connect even if in close proximity to adult supervision or within the confines a garden or housing estate. Being outdoors all the time (even if it has become more restrictive in recent decades) does not necessarily impose on the educational opportunities available to children when outdoors. Though the quantity of time outdoors has altered in recent decades children share very similar accounts to adult interviewees when describing games and activities outdoors. Changes in the physical, social and cultural landscape of Ireland have modified the connection but the quality of connection remains when given the opportunity, as described from the perspective of a child (more so than the assumption of the adult).

Furthermore, the investigation of environmental education in primary school as described by interviewees highlights the marginalisation of the subject overtime. Environmental educators, school staff, parents and children reveal a pattern as regards the teaching of environmental education at school. Some discuss an influential teacher, motivated school, one-off class trips, regular field trips, nature tables, bug hunts and exploring the school grounds. Irrespective of outsourced environmental education initiatives that are now
more available their effectiveness appears to be dependent on an individual teacher or school.

What is of interest here is that the children interviewed were not dependant on environmental education at school rather it enhances their experiences of the natural world that occurs after school hours. The data suggests that some environmental education in school is relevant to children however, as a method of (re)connecting children, environmental education clearly needs to reassess what its understanding of a (dis)connect means and how it benefits/hinders children’s perceptions and experiences of the natural world and of environmental education.

Figure 7: Interviewed children challenge the disconnection hypothesis

The following chapter - Chapter Eight - puts into context the findings from this thesis so as to contextualise the new evidence and its contribution to the field of environmental education.
Chapter 8

Discussion of key findings

8.1 Introduction

During the course of this thesis the (in)effectiveness of environmental education to (re)connect children with the natural environment has been explored. This research reveals that what is regarded as effective environmental education is subjective and a concept of a ‘connection’ is inherently complex. Environmental education is underpinned by differing educational approaches and concepts of the natural environment that are at times diametrically opposed in meaning. This subsequently influences what type of connection environmental education seeks to build between children and the natural environment. Analysis of empirical data collected for this research reveals that in practice environmental education has been and continues to be intermittent in primary schools in Ireland. Some provisions integrate with the formal education system but these promote a different type of educational experience than those offered by educators interviewed for this thesis. The conceptual tensions between provisions and within curricula stem from a disjointed field of enquiry where children’s experiences are dependent on which concept of environmental education is being delivered. In Ireland this disparity is clear as programmes and initiatives work independently of one another. There is no classification system for current provisions of environmental education, with differing environmental experiences going largely unnoticed in literature. This has been referred to by some environmental educators who were interviewed for this research (section 5.2). The fact that such disquiet exists amongst some practitioners is positive for environmental education but is not reflected by the majority of those involved in teaching and learning. The disjointed approach has to be addressed in a systematic way so that the environmental messages and concept of a ‘connection’ is easily identified and understood.
8.2 Re – visiting the research objectives: what was achieved?

By reflecting on the research objectives outlined in Chapter One these key findings are re-emphasised and debated in this chapter. Through an analysis of how the research objectives were answered, the overall argument can be made for what are the findings of this thesis, sheds new light on contentious debates by providing a transparent picture of environmental education practices in Ireland.

1. **Examine the development of environmental education in Ireland, and to what extent it is (in)effective in (re)connecting children with the natural environment.**

The development of environmental education in Ireland is complex due to a range of inhibiting factors including; political, social and ideological barriers following Independence in 1922. Under colonial rule primary school teachers were encouraged to take their pupils outdoors, even if it did not occur on regular basis. By 1922 however, an interest in flora and fauna was not deemed specifically *Irish* but instead associated with the Ascendency. In 1934 environmental education became an optional subject in all national schools as priority was given to the ‘mastery of the Irish language’ which reflected the dominant nationalist ethos of the time (Coolahan, 1981, cited in Lysaght, 1997, p. 441). Environmental education contradicted the ethos of the Irish Free State and the extensive examination of Irish primary school curricula demonstrated the marginalisation of the subject right up to present day. The demotion of the subject particularly in 1934 led to generations of primary school children having little or no environmental education at school except at the discretion of the school teacher. The majority of adults interviewed for this research stated that environmental education was largely absent during their primary education (section 6.2). The age of adults ranged from between mid-twenty to mid-seventy years of age and therefore some were students influenced by the issues in the post-Independence era (National Programme for Primary Instruction (1922-1971) and Curaclam Na Bunscoile (Primary School Curriculum)
This research suggests that the attitudes in the formal education system also played a key role in marginalising environmental education.

Perhaps the architect of the post-Independence Irish education system assumed that as a largely rural landscape, environmental education occurred naturally or rather ‘by osmosis’. In a largely rural landscape in the mid-twentieth century children spent time in the outdoors often engaged in agricultural work or exploring their natural surroundings after school hours. The available literature does not go beyond the ideological barriers of post-Independence, or discuss the education system or particular curricula (Sadler, 1897, O’Connell, 1968, Hyland, 1971, Lysaght, 1997, Cloonan, 1981, NCCA, 2010a, NCCA, 2010b). Therefore, the hypothesis put forward by this thesis is new for environmental education research. It is supported by many adult interviewees who felt that limited environmental education at school reinforced their experiences after school hours or as one parent remarked ‘it was kind of taken for granted […] it was just assumed that we knew a lot about nature’. Some environmental educators argued that their childhood environmental education took place after school hours often with a mentor (relative, neighbour) or alone. Many school staff provided a similar picture which was more focused on groups of children moving together through the countryside. One parent questioned whether this informal environmental education replaced the subject at school because those in education assumed children already knew. This suggests that this ‘informal’ environmental knowledge was largely overlooked by formal education and it did not seek to advance and further develop such experiences during school hours – unless taught at the discretion of the teacher. Political and ideological barriers, such as cultural, historical and economic developments including, the foundation of Irish Free State, membership of the European Economic Community, Celtic Tiger’ era, affected a number of primary school curricula (Irish Times, 1922, National Programme of Primary Instruction, 1922, Lysaght, 1997, Walsh, 2004, Curaclam na Bunscoile Teachers Handbook Part 1, 1971, Flynn, 2011). This research suggests that environmental values
and perceptions of environmental knowledge also played a key role in how environmental education was delivered in many of the early curricula.

The mapping of Irish environmental attitudes within existing data sets and documents gave a clearer indication as to the development of environmental values which provided additional information on the concepts of the natural environment that underpin environmental education. A notable absence in literature is how environmental education defines the natural environment and what concept of ‘the environment’ it embraces. It was found that concepts of nature, environment, natural surroundings and natural environment were frequently used in research without clarification. The limited literature available on how children in particular, perceive the natural environment illustrates a significant gap in the debate (Loughland et al., 2003, Bonnett and Williams, 1998).

Eurobarometer surveys provided ample evidence of the changing nature of environmental attitudes and also how the natural environment is conceptualised within everyday discourse. This research argued (Chapter One) that a concept of the natural environment within surveys is anthropocentric (An Taisce, 1987, European Commission, 2005, 2008), and a notion of interconnectedness or a sense of belonging with the natural environment is absent. Interestingly, findings in Chapter Five and Seven illustrate purposive environmental education is a dominant trend within the school environment. This suggests that wider societal attitudes have an influence on environmental education practices which are overlooked by research in favour of debating the contradictions in its relationship with formal education. Some environmental educators and parents describe this strand of environmental education as one-dimensional, questioning which relationship with the natural environment it seeks to achieve. This suggests that the environmental attitudes that underpin environmental education are complex yet influenced by the state as to how and in what way it will be taught.
On the other hand, some adult interviewees recall experiencing environmental education during their primary education though it was intermittent and ineffective. Some educators, school staff and parents mentioned one-off class field trips, class excursion or having a nature table in the classroom. Findings from data suggest that the regularity of any environmental education was dependant on the interests and motivation of an individual teacher. The experiences reflect poignant memories rather than examples of regular environmental education. The demotion of environmental education post-Independence marked an important juncture and the beginning of a perpetual cycle whereby environmental education was taught at the discretion of the teacher. What this research reveals is that the marginalisation of environmental education identified in the examination of curricula coincided with reports from the majority of adult interviewees and their experiences at primary school.

Some school staff and parents argued that environmental education is more regular since the introduction of the New Curriculum (1999-present). School staff compare and contrast their primary school childhood experiences with those of their students today. Unsurprisingly, most comments are positive considering the interdisciplinary nature of environmental education which unlike the previous curriculum amalgamates with not only one but two subject areas, SESE and SPHE. Working with the curriculum on a daily basis some teachers clearly organise environmental education to incorporate it into class lessons. Parents are also positive, as unlike their own primary education, environmental education appears more regular as their children inform them of efforts at school. The majority of environmental educators, however, argued that environmental education is continually marginalised because it contradicts the dominant functions of education. Many educators feel that irrespective of curriculum, environmental education is intermittent and not valued like other more hierarchical subjects. The introduction of ‘glance cards’ in the New Curriculum sought to help teachers fulfill curricular objectives and ease time constraints by presenting the aims of a particular strand/strand unit on one
card and encourage continuity of content across class levels (NCCA, 2010a). However, the short-term strategy did not improve the status of environmental education because it did not solve the issues surrounding curricular overload. Comments from the majority of environmental educators and the critical examination of the current curriculum suggests that environmental education lags behind changes in formal education by not availing of opportunities to define itself, its purpose and what it seeks to achieve within the education system.

The absence of a universal definition of environmental education is critical to this marginalisation in education. All environmental educators, for example, stated that an empathetic relationship with the natural environment is central to the development of environmental attitudes and behaviours. However, policy-relevant definitions are underpinned by rational educational approaches in order to solve environmental problems and within that context develop environmentally sustainable lifestyles. The discrepancy is obvious yet largely overlooked by research which favours educational outcomes and the links to global environmental sustainability. The critical review of the disconnection hypothesis in Chapter One and Two synthesised key arguments and the major trends in social science research providing a comprehensive review on current thinking in research. The majority of literature assumed children are disconnected from the natural environment and give little consideration to their own experiences or whether this type of connection remains or alters depending on broader socio-cultural dimensions. The methodological tools to measure a connection are more often quantitative in approach, predesigned and with a specific educational outcome in mind (Rickinson, 2001, Nagel, 2009). Studies provide information on children’s environmental knowledge, attitudes and concerns with few considering how children emotionally, physically or intellectually connect with the outdoors. Interestingly, the policy-relevant definitions exhibited a didactic and rational tone transfixed with global environmental issues but the way people conceptualise such problems and the role of environmental education as advocated by
These linear models and the amalgamation with emerging concepts of sustainable development and education for sustainable development had the effect of undermining instead of establishing environmental education, its role within formal education and the global environmental context. The absence of developing 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. This research provides a working definition that balances rational and humanistic approaches, drawing attention to this gap. The accounts from many educators further illustrate this focus on environmental outcomes rather than learning processes and learner relevancy. Current environment practices within our educational system may be doing more to remove children from their natural environment instead of (re)connecting them.

This lack of definition coincides with the myriad of educational approaches that are reinforcing the dominant practices. The majority of publications examined in Chapter Three give little consideration to what extent approaches are learner relevant and instead focused on integration with the formal education system. Preoccupation and confusion with approaches including, education in, about, for and with the environment, leaves little room to critique environmental education or the relationship with formal education (Lucas, 1972, Disinger, 1983, Davies, 1998, Palmer, 1998, Gough and Gough, 2010). Considering the criticism of the failure of environmental education to prevent environmental damage, greater consideration of the learner and learner’s relevancy is paramount. The process of educating children and the intended educational outcome for environmental sustainability must go hand in hand. The flexibility of environmental education to integrate across cognate disciplines is beneficial but only if it engages the learner. Analysis of the interviews with environmental educators and children for this research demonstrated that in Ireland provisions focus on one or the other (section 4.2, 4.3). The majority of children, for example, described a nuanced picture as regards their
understanding of environmental education. The impact of ill-defined practices is clear. Environmental education should do more to standardise environmental education approaches by promoting systemic change in the sector that concentrates on the learning processes of students and the use of the formal education system to aid that process.

Mandatory pre-service and in-service environmental education training for teachers would help teachers to navigate through the current curriculum as well as alleviate issues regarding confidence and knowledge. Some environmental educators advocated practical environmental education training for teachers including class projects at different times of the year, individual reports and teamteaching approaches at teacher training colleges in order to provide a repertoire of environmental education resources, once teachers are qualified. One educator argued for education centres for environmental education courses to be available during the academic year to support teachers. The majority of environmental educators were open to supporting and collaborating with the training in order to prioritise environmental education at school.

However, the issue of training is more complex as environmental education is now inextricably linked with broader concepts of sustainability. The Department of Education in Ireland, for example, is developing a strategy for education for sustainable development (ESD) (Section 1.2) but as discussed in Chapter Three, the amalgamation of environmental education with concepts of sustainable development (SD) and ESD minimises its efforts. The delivery of environmental education as advocated by educators is very different and is undermined in favour of developing the concept of environmental education within broader concepts of sustainability. This broadening scope does little to build the confidence in teachers who are already under pressure to complete curricular objectives. A critical examination of primary school curricula in Chapter Four demonstrates that knowledge and confidence was key in the teaching of environmental education. Sixteen years after the introduction of Curaclam na Bunscoile (Primary School
Curriculum) (1971-1999) a report recommended that collaboration between parents and community as well as ongoing training would alleviate the issue and increase the delivery of environmental education at school (An Taisce, 1987, p. 5). What is surprising is that with the advent of the New Curriculum (1999-present) the issues are not resolved but magnified as curricular and pedagogy approaches expand to include the emergent concepts of SD and ESD. In recognition of environmental education’s continuous marginalisation and amalgamation with emerging concepts of environmental sustainability, the Department of Education could collaborate with environmental educators. The aim would be to develop environmental education training schemes during teacher training, which could continue once they are qualified. It is important that school staff feel equipped to teach environmental education and to see it as an educational experience between teacher and learner.

Outsourced environmental education programmes in Ireland are a crucial resource for teachers. They compensate for inadequate teacher training but also promote more effective and regular environmental education at primary level. The plethora of programmes mentioned by many school staff, parents and children illustrates the resilience of environmental education to use alternative approaches in order to reach children. However, formal education plays a key role in which concept of environmental education children experience. Findings from children interviewed (Chapter Five and Seven) show that some clearly associate environmental education with environmental sustainability and fixing global problems but not the development of empathy and appreciation as advocated by all educators. In Chapter Three it was argued that environmental education contradicts the dominant functions of formal education by not fitting into one traditional subject area and comments from many adult interviewees suggest this to be the case in Irish primary curricula. This view coincides with ongoing debate as to the purpose of education in environmental education and social-scientific research (Stevenson, 2007, Blewitt, 2012). The structure of education has continually
influenced how environmental education is taught. The emerging concepts of SD and ESD do not clarify the purpose of environmental education rather they accelerate the gap between rational and humanistic experiences for children. Data analysis reflects this issue and questions the effectiveness of the more holistic programmes provided by the sector.

The introduction of a national environmental education organisation to oversee and regulate the strand of environmental education delivered by educators would alleviate issues regarding at times, the conceptually conflicting and imbalanced provisions available for children. As the environmental education sector continues to develop it is important to note that educators use the formal education system to reach large number of children but those who were interviewed do not seek to complement curricular objectives. In fact none of the environmental educators interviewed mentioned or discussed the curriculum or linking their programme to subject areas such as SPHE and/or SESE. Accounts from educators suggest ambivalence towards the curriculum and many seek to educate children about the natural environment through more humanistic educational approaches. The relationship between environmental education and formal education, as described by educators, is contentious as many describe it as didactic in approach. This argument is not new in environmental education research (Stevenson, 2007) however; it appears that it is solely reliant on the teachers to link the programmes of educators with the curriculum. That is not say to say that educators do not liaise with teachers, but the lack of subject awareness further suggests that what underpins programmes delivered by educators does not link specifically to curricular aims and objectives. Effective communication between educators and schools ought to go beyond providing presentations and educational tools or resources for teachers. How and in what way outsourced environmental education will benefit children’s understanding of the natural environment must be the priority. On-going liaising between these strands of the environmental educators and primary schools would share the responsibility of working with the curriculum and increase the effective delivery of such programmes overall.
Conversely, educators enjoy a sense of autonomy in the structure, content and delivery of their programmes. Consultation and developing a partnership with one another let alone educational authorities could diminish their sense of freedom, with some not inclined to participate. The development of a strategy, for example, could be perceived as an attempt to streamline programmes to suit formal education as opposed to the other way round. All educators were adamant that experiential education outdoors is central to environmental education efforts, yet the more effective environmental education programmes (effective meaning more consistent in a child’s education) occur indoors. The strategy would involve cooperation between the environmental education sector (practitioners) and those in education to balance indoor/rational with outdoor/experiential environmental education for children.

In Ireland, there are no compulsory environmental education assessments or qualifications necessary to work as an environmental educator. Therefore, children potentially experience a different quality in the delivery of a programme across the country. Not only is environmental education dependant on a motivated teacher to facilitate it but also on the ability and qualifications of the educator who teaches in a particular area – which remains unchanged since Independence. This research suggests that an environmental education network that is standardised and regulated would provide hands-on and regular updating of educator training and the sharing of educational tools and resources. However, to what extent those working in the field at present would engage in this ‘structured’ approach is uncertain.
2. Critically analyse environmental education and its underlying concepts of education, of the biophysical environment and of sustainable development.

The analysis of empirical data in this thesis shows that environmental education is underpinned by two conflicting conceptual strands. Environmental education that prioritises experiential humanistic approaches advocates a socially critical approach to values and beliefs about the natural environment (Strand 1). This corresponds with literature that argued for children to reconnect with the natural environment through direct experiences outdoors (Louv, 2005, Ofsted, 2008, eftec, 2011, O’Malley 2012a, 2012b). Outsourced programmes, as described by environmental educators, are reflective of this strand where focus is placed on the learning processes and experiential education in the natural environment. Environmental education that promoted rational educational approaches emphasise the management of this relationship in order to solve environmental problems (Strand 2). Strand 2 concentrates on the transfer of knowledge from teacher to learner, desired educational outcomes and is more often delivered indoors. This strand of environmental education is more consistent because it clearly identifies with the pedagogical approaches and structure of formal education. This strand is more likely to transfer environmental knowledge back to the home due in part to its regularity in a child’s education. The conceptual conflict between Strand 1 and Strand 2 provisions of environmental education goes largely unnoticed except by some environmental educators. This has not been previously identified by environmental education research and the disquiet in the sector is positive because it encourages the sector to develop differing educational experiences for different facets of the learner. Here, the development of an independent environmental education sector supported by the State would identify and classify these current environmental education practices. In doing so, the sector would raise greater awareness of the differing provisions it offers but also ignite debate as to the importance of standardisation for children and their relationship with the natural environment.
This research argued that a critical examination of the concepts of the natural environment that underpin environmental education is largely absent in research (Chapter One and Two). Terms such as nature, environment, natural surroundings and natural environment are frequently used without clearly defining what they mean. In addition, they are often used interchangeably, thereby glossing over significant differences in their meaning and their connections with environmental education (Schultz, 2000, Loughland et al., 2003, Bonnett, 2007). Across all interview groupings strong patterns emerge as to their perceptions of the natural environment. Analysis reveals that a concept of the environment is understood as being a problem to be solved by better resource management to solve global issues (recycling, energy consumption). On the other hand, a concept of nature consists of empathy, a sense of place, emotional connections and recreation in the outdoors. The findings of these conceptual strands suggest that interviewee’s knowledge is a substantial positive source for the effectiveness of environmental education. This is particularly the case as some environmental education programmes such as the Green Schools (GS) programme and Incredible Edibles promote a concept of the environment, to include notions of environmental mismanagement, duty and responsibility, and the shaping of consumer behaviour and trademark recognition. On the other hand, environmental educators promote a concept associated with nature in the development of an intimate connection and appreciation of all aspects of the natural environment promoted in their programmes. The differing concepts of the natural environment that clearly underpin the programmes are distinct, but analysis of empirical data revealed that perceptions are times blurred and/or contradictory. Considering the environmental crisis, it is crucial for environmental education to be aware of this conceptual diversity and the benefits for enhancing understandings of the natural world for the learner.

An unexpected issue to emerge in this thesis is the lack of research as to how children respond to environmental education. Within the literature there is little qualitative data on
children’s experiences of environmental education. Although small in number and exploratory, there are some qualitative studies that investigate children’s interpretations of the biophysical environment. A pilot study by Bonnett and Williams (1998) finds that children express strong feelings and opinions towards the natural environment. Findings were positive as children identified between concepts of the environment and nature but also demonstrate conceptual diversity as to their position or relationship within a particular context. This thesis determined children’s ability to conceptualise and articulate how they connect with their environment. Similar to Bonnett and William’s (1998) study this research reveals children’s awareness and ability to put forward similar perceptions to those of adults. Conceptual diversity with regards to concepts of the environment and nature exists and through a detailed analysis of the contextual meaning behind children’s perceptions of the natural world, it is suggested that a pattern, though blurred and at times contradictory, was possible. It is found that solving environmental issues meant managing the problem, rather than questioning it, and this perception can shape children’s environmental consumer behaviour, for example, choosing Fair Trade or organic produce. It also 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 light on how children socially construct notions of the natural environment and thus new evidence to debate as to how their perceptions can be influenced by broader social, cultural and economic dimensions.

Essentially, programmes delivered by educators were not recognised by 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. The establishment of an environmental education sector would promote consistency in current provisions while also evaluating shortcomings between strands. In doing so, practitioner based environmental education can establish as a relevant and effective resource for learners.

3. **Capture the diverse experiences of environmental education practitioners and learners.**

Environmental educators strive to deliver programmes which are reflective of their childhood connection with the natural environment. In their programmes educators emphasise the use of the senses, they develop observation skills and encourage learning through direct contact. This focuses on socially critical education that promotes social change in values and beliefs towards natural environment and its resources. The experience promoted often replicates a romanticised experience of their childhood connections with the natural environment. However, educators do not take into consideration that the unstructured format of their programmes is delivered in a structured context (primary school) and adult supervision (teachers, educators) which is inherently different to the experience they seek to recreate. Programmes are comprised of activities, games and in some cases quizzes in order to engage children but the overall experience does not necessarily influence a particular type of connection. The connection they seek to achieve is minimal as this strand of environmental education is intermittent in the formal education system overall. Furthermore, the majority of educators give little consideration as to whether the programmes are relevant to children and their perceptions of the natural environment. Some children, for example, referred to ‘a person’ coming into the school to deliver programmes similar to those delivered by interviewed educators, though accounts are minimal. To improve the influence of programmes in formal education, environmental educators could communicate with teachers on aspects of the natural environment they are unfamiliar with while exploring methods that advance
children’s own experiences when outdoors. The programmes delivered by educators are flexible to incorporate the experiences of the learner and encourage more dialogue from students.

The majority of school staff register with any environmental education programme which provides children with the opportunity to participate in their own learning in a fun way. Teachers described a plethora of environmental education programmes that are available which share similar approaches to those provided by educators. Some discussed visiting (environmental) experts or class trips to a local area of natural interest such as woodland, which shares similarities to programmes delivered by educators. A number of other programmes were discussed in greater detail including those that are predominantly indoor and integrate into the school setting for longer periods of time. Programmes such as the GS programme, the marine-life programme (aquarium) and Incredible Edibles, to name a few, work with a school for a number of months or (potentially) years (section 5.2). This is an advantage over the programmes delivered by educators as the length of time gives teachers the opportunity to plan and organise the curriculum around it. School staff suggested that planning and time management is central to completing the curriculum for the end of the academic year. The fun and enjoyment for children clearly goes hand in hand with choosing an environmental education programme that will alleviate these pressures and help complete curricular objectives. Not only is effective environmental education dependent on its ability to integrate into formal education but it must also work to alleviate the time pressures felt by individual teachers.

The primary concern for all interviewed parents is that formal education is an enjoyable experience for their children. Within that context environmental education is viewed positively as children find it educational, engaging, and fun. Analysis of environmental education from the perspective of parents is timely for environmental education research. Literature often discusses children’s disconnection with the natural environment and
within that context the experiences of older generations (Play England, 2008, Ofsted, 2008, Natural England, 2010, eftec, 2011, Centre for Ecoliteracy, 2014). This research provides a unique insight to intergenerational learning from the perspective of children’s experiences of environmental education. Parents did not refer to the environmental education programmes delivered by interviewed environmental educators but are instead informed by their children of individual one-off activities. This suggests that outdoor experiential education as advocated by all environmental educators is memorable for children (as they tell their parents about it) but intermittent as certain parents suggested that these approaches to environmental education is merely a nice day out.

On the other hand, the GS programme was mentioned by the majority of parents and analysis of data suggests that many perceived the programme as the provider of environmental education for children at primary school. Some parents discussed the influence of the programme and knowledge transfer back to the home, particularly in regard to the monitoring of energy consumption. Intergenerational learning is enjoyable for parents and it reinforces what children experience at school. The economic benefits of turning off lights, recycling, reusing and reducing waste in the home were also positively received by many parents. Parents are motivated and enjoy contributing to their child’s environmental education but are not aware of the different programmes available and how they differ from one another. A more balanced approach to environmental education of clear definition of both strands, in primary education would build confidence and motivate parents further to be part of their child’s environmental education both indoors (rational) and outdoors (holistic).

Parents perceived environmental education as educational, social, but also important for the development of an improved appreciation for the natural world. Some parents felt it

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48 For example, a bug hunt, a ‘nature expert’ visiting the school or a class tip to a woodland but was not necessarily aware as to the purpose of an activity or particular initiative.
was their responsibility to be the primary provider of (environmental) education and to encourage a thirst for knowledge about the natural world. This suggests that some parents do not rely solely on the formal education system to educate their child but to complement environmental education that originates in the home. These parents promote experiential education, similar to that of environmental educators, whereby children are encouraged to explore their natural surroundings often with limited adult supervision. Certain parents believed this to be an important part of developing cognitive skills, self-reliance, and independence as children learn to navigate through self-made challenges, such as building forts and dens.

Other parents were more cautious of their children going outdoors and to a certain extent satisfied that environmental education occurred during school hours. Although in agreement as to the social, emotional and physical benefits of outdoor play and learning, their primary concern was health and safety. Several parents who were interviewed for this research stated that inadequate infrastructure and (sub)urban planning are significant factors in keeping their children indoors and/or under constant supervision when outdoors. Arguments that anti-social behaviour, traffic and noise pollution in growing (sub)urban areas have heightened parents’ awareness of risk and health and safety issues. Data from some parents suggest that children’s lack of amenities and inadequate infrastructure can restrict access to the natural environment (Corcoran et al., 2009, National Trust, 2012). These parents are inclined to rely solely on the formal education system to provide environmental education.

Though all parents stated that environmental education and environmental sustainability is important for children, children’s opportunities to experience the outdoors at home are varied. Differing attitudes amongst parents to formal education and the purpose of environmental education is integral to that finding. Better communication between the environmental education sector, schools, community and parents about the role and
function of environmental education is needed. Parents should be encouraged to use places/areas of natural interest for visits and also promote activities/events that children can engage in/with. This could alleviate some parental concerns regarding safety but also the reliance on formal education to be the sole provider of a child’s environmental education. By supporting parents in their efforts this will generate awareness of the plethora of educational opportunities for children in the outdoors that ideally will complement ongoing work at school.

It is interesting how many parents place a strong onus and responsibility on themselves to provide children with the opportunities for outdoor play. The issues of inadequate infrastructure, excessive motor vehicle speed limits, lack of footpaths, and (sub)urban design give little consideration to children’s freedom of movement. This contributes to parental anxiety which results in keeping children indoors under supervision. However, this emphasis on personal responsibility clearly ignores a wider social context that prevents children’s outdoor play. For example, social and cultural changes within a community which also are also influenced by broader land use changes, including the (sub)urbanisation of parts of rural Ireland (Corcoran et al., 2009, Department of Children and Youth affairs, 2012a, 2012b). These examples of planning that is non-inclusive of children suggests that personal responsibility and social responsibility need to go hand in hand to provide easy access for children to their local natural surroundings.

Some environmental educators comment on the role of technology in education and suggest that computers in the school environment leave little room for environmental education. However, what is rarely mentioned is the use of technology as a teaching aid in environmental education programmes. Some educators use props or games to engage children, and also use PowerPoint presentations to stimulate interest. The use of technology helps the educator to gauge the knowledge levels of children, and to show images of species that children will recognise outdoors. This aims to enhance their
knowledge and make the experience more vivid for children. Some educators have been known to leave such presentation material with the school to encourage revision in the classroom. The Burrenbeo Trust (NGO-led) programme links with schools on a weekly basis providing quizzes, newsletters and information on how to use these modules in class. The use of technology is clearly appropriate as an educational tool that complements as opposed to replaces the experience. Environmental education embraces new methods of communication and technology but yet has a distinct reservation about it as expressed by many in the profession.

In Chapter One concerns regarding children’s (over)use of technology and the link to children’s disconnection from the natural environment was outlined (Malone, 2007, Louv, 2005, Scarlett et al., 2005). The majority of school staff were critical about the dependence of children on computer games, the television, and other media outlets. Some teachers find that the overuse of technology contributes to behavioural issues in the classroom and can impact on the personal, emotional and cognitive development of a child. This coincides with numerous publications which share similar views and findings (White, 2004, Scarlett et al., 2005, Heritage Council, 2010). In the context of environmental education, the natural environment versus technology is over simplistic. The behaviours that surround children’s use of technology requires attention as it is very much part of a child’s daily life in modern society. However, the use of technology, including white boards in the classroom, is a resource for environmental information as it complements outdoor environmental education. There is a perception amongst school staff that technology limits children’s imagination and creativity. But with careful monitoring and a critical analysis as to its purpose within education it can complement children’s educational experiences of the natural environment. Children’s habits and behaviours regarding technology are part of wider societal debates, but those involved in the teaching of environmental education ought to acknowledge the benefits of technology in environmental education and develop it as a complementary instrument of learning.
Parents who were interviewed had differing opinions as to children’s use of technology. Some parents demonstrated concern that technology replaced ‘real life’ experiences. Computer games were described as successful in vying for children’s attention and occupying their spare time. Parents stated that sometimes it was difficult to break the connection between children and technology as it is very much part of their everyday life. Going outdoors, although many children appeared to enjoy being outside, needed persuading from some parents as it involved moving away from technology. This issue was discussed in Chapter Two as it is a common theme in literature arguing that technology contributes to children’s disconnection from the natural environment. Parents were criticised by some educators and school staff who felt they encouraged the use of technology and thus prevented children going outdoors. What is surprising is that some parents were in agreement. Those parents sought to regulate the use of technology in the home by balancing it with active play outdoors. The motivation of parents to manage their child’s behaviour around technology requires effort and motivation. It is dependent on a parent’s perception of technology and its purpose. On the other hand, some parents would prefer children did not spend so much time using technology but feel safer with them indoors and under their supervision. The perception here of technology is to provide a sense of security for parents. What this research suggests is that the underlying (over) use of technology is not necessarily more enjoyable for children than being outdoors, but that changes in society, including fear and risk in the minds of some parents, contributes to children’s (over) use of technology.

The children interviewed represent a generation that has grown up with technology having a dominant role in an educational, social, and recreational context. A number of children refer to characters and places in films, for example, in recreating a storyline but adding their own interpretations once outdoors. From that perspective the use of technology becomes part of how they spend their time outdoors, providing a platform to
develop their imagination and creativity. Technology provides an idea but the children decide to what extent it is useful to the game, activity or adventure they embark on. This research argues that technology plays a key role in occupying children’s spare time but is part of wider social and cultural debates. People learn about the natural environment through the socialisation process within their cultural framework (Corcoran et al., 2009). This thesis reveals that children are active agents in using technology in their environmental learning in local environments. For environmental education, however, children’s capacity to intertwine technology with their relationships with the natural environment does not take from the quality of their outdoor experiences. Environmental education and formal education clearly use technology as an educational resource, so why would children be any different?

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. Not all children, irrespective of regional location, knew the names of species but a common thread throughout was the familiarity and sense of ease with being outdoors. Some children in rural areas felt a sense of ownership, for example naming a rocky island close to the house ‘Tracey Island’ 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. However, the
depictions from children overall demonstrated their ability to work with physical barriers and be opportunistic within the space available.

Overall this research suggests that children are not necessarily disconnected from the natural environment but rather experience a different type of relationship to that of previous generations. Despite the dominant arguments that underpin the ‘disconnection hypothesis’ (Chapter One and Two) children who were interviewed were found to be environmentally informed, knowledgeable and portrayed a sense of attachment with their natural surroundings. Furthermore the majority were informed as to the implications of pollution and mismanagement of wider habitats and ecosystems. Literature assumes children are disconnected and environmental education seeks to reconnect them with the natural environment (Sobel, 2008, Natural England, 2010, 2011, eftec, 2011). But the views and opinions of children is largely absent in such debates and as discovered by this thesis is also overlooked by many of those actively involved in the teaching of environmental education. The children who were interviewed showed ingenuity and resourcefulness irrespective of the increase of physical or social barriers in recent decades. Though the majority of educators, school staff and parents agree with arguments underpinning the disconnection hypothesis, the children demonstrated that a connection remains, that it is resilient and adjusts to the extenuating circumstances. This indicates and reveals significant evidence as to the construct of a connection in children’s social and cultural frameworks which was discussed in Chapter Two (Corcoran et al., 2009, Linzmayer and Halpenny, 2013).

If a connection between children and the natural environment remains, is environmental education at school necessary at all? The answer to that question is ‘yes’, but a balance between rational and humanistic approaches in environmental education is required to develop this intimate relationship further and emphasise the social, economic, and environmental benefits that underpin it. The dominance of a purposive concept of
environmental education overlooks the benefits of regular experiential education outdoors. That is not to say that certain programmes ignore that aspect, but feedback from the majority of children suggests that responsible resource management is environmental education. There is a certain disregard for holistic environmental education that 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 environmental education and the different educational experiences provided, but considering the ecological crises a more inclusive standard of environmental education is necessary.

8.3 Conclusion

This chapter offers an in-depth discussion of empirical data from environmental educators, school staff, parents and children and links to the critical examination of key literature outlined in earlier chapters. The overall argument and findings of this thesis provide impetus for renewed sociological debate of (environmental) education and the theories of (environmental) education in cognate disciplines. What is revealed in this body of work is that effective environmental education is subjective and a concept of a ‘connection’ is inherently complex. The conceptual tensions stem from a disjointed and ill-defined field of enquiry where children’s experiences are dependent on teacher interest but also on which concept of environmental education is being delivered. There is an inconsistent classification system for current provisions of environmental education. This inconsistency is largely ignored in literature and also by those working in the field. Those involved in environmental education research need to engage in introspective debate in order to clarify and define the purpose of environmental education and the benefits for children at the receiving end. In order for the concept of a connection to be identified and understood a new systematic and regulated approach needs to be explored and introduced.
Chapter 9
Conclusions, areas for future research and policy recommendations

9.1 Introduction
This research investigated the ineffectiveness of environmental education to reconnect children with the natural environment in Ireland. Based on in-depth analysis of empirical data collected for this research and secondary sources it demonstrates that the effectiveness of environmental education is dependent on what type of ‘connection’ it seeks to achieve. The marginalisation of environmental education, for example, in primary curricula is partly shaped by political and historical developments post-Independence, including changing environmental attitudes which impact the status as a subject/subject area. Environmental education that promotes a rational educational approach to solving and managing environmental problems is found to be more consistent in a child’s (environmental) education than humanistic approaches synonymous with experiential environmental education as provisions suit the structure and educational objectives of formal education.

Outsourced environmental education available to primary schools promotes both strands but due to rationalised structure of formal education environmental education that is more focused on learning outcomes than learning processes is more regular in a child’s (environmental) education. The absence of a universal definition certainly hampers environmental education but that does not justify promoting one strand over another as it integrates with broader issues surrounding (environmental) sustainability. It is however, about embracing and acknowledging the differing pedagogical approaches that co-exist and ensuring their relevancy to the experiences children have (or not) outside of a formal education context.
This chapter – Chapter Eight – summarises the central arguments and findings outlined in this thesis. It presents the main conclusions of this research before providing recommendations for future research and policy development.

9.2 Summary of main arguments and findings

This research theoretically explores and empirically investigates the underpinning concepts of environmental education provisions in Ireland and to what extent they (re)connect children with the natural environment. Discourse surrounding children’s growing (dis)connection from the natural environment is deeply rooted in environmental education research and practices. This research reveals that what is regarded as effective environmental education is subjective and that the ‘connection’ provisions seek to build between children and their natural surroundings is inherently complex. Environmental education is underpinned by differing educational approaches and concepts of the natural environment that are at times diametrically opposed in meaning. This influences the type of connection environmental education seeks to build and its ineffectiveness in formal education. Chapter One identifies gaps within research and the lack of critical examination of the concepts that underpin environmental education efforts. This is significant considering the expectations of environmental education to (re)connect children with the natural environment and halt further environmental damage. The relationship between environmental education and formal education is complex but research is repetitive with few addressing the role of the learner and how he/she experiences environmental education at school. The plethora of publications refer to concepts of nature, the environment, the natural world, biodiversity, physical environment, and the outdoors but do not critically examine concepts of the natural environment that underpin environmental education or the implications for how children conceptualise their natural surroundings. Publications which were discussed refer to the outdoors, nature, the environment and environmental sustainability and the role of environmental education within that context. Ireland provides an opportunity to address these issues and the significance (or not) of environmental education on children’s
relationship with the natural world. The chapter put forward a broad analytical perspective to examine the underpinning concepts of environmental education through a multi-method framework that combines qualitative methods of data collection, semi-structured interviews with environmental educators, school staff and families, and secondary analysis of relevant literature, documents, and existing quantitative data. This methodological approach sees the perspectives and experiences of children as central to promote a potentially new understanding of environmental education.

A preoccupation with terminology and prevailing adult perspectives in Chapter Two, reveals that a gap remains in social research on environmental education as regards the voices of children. A critical examination of the disconnection hypothesis finds concept of a connection with the natural environment is inherently complex. The majority of publications refer to the socio-biological dimensions when trying to capture changes in children’s connection with the natural world in modern, developed societies, and their potential impact on society–environment relations more generally. What underpins the disconnection hypothesis plays a significant role in learner relevancy and effectiveness of environmental education yet the literature is preoccupied with measurement tools that focus on learner outcomes rather than processes. The critical examination of two dominant concepts of the natural environment - ‘the environment’ and ‘nature’ – finds that children have the cognitive capabilities to analyse and form opinions of their natural environment. However, the gap in environmental education literature as to how children develop their ideas is largely overlooked with only a small number of studies that focus on children’s capacities. The chapter provides an integrated approach that questions assumptions of the disconnection hypothesis which brings forward current models and dominant arguments within mainstream environmental education efforts.

A universal definition of environmental education is desirable as it is vulnerable to the amalgamation with emerging concepts of (environmental) sustainability. A critical
The analysis of the literature in Chapter Three finds policy-relevant definitions to be rational in tone and to promote environmental education as solving and managing environmental problems. This thesis presents a working definition for environmental education that promotes balance between rational and holistic approaches to establish instead of to marginalise its efforts in broader definitions of environmental sustainability. The critical examination of concepts that underpin environmental education including educational paradigms and concepts of the natural environment demonstrates the lack of attention given to how people interpret and learn about the natural world, particularly from the perspective of children. This is surprising considering contemporary debate surrounding children and their (dis)connection with the natural environment. Following the analysis of literature the chapter further develops a theoretical framework of a typology of conceptions of environmental education including concepts of education, the natural environment and of sustainable development to address the research objective and guide the analysis of empirical data.

Chapter Four finds that within primary curricula in Ireland environmental education is marginalised and partly influenced by changing environmental attitudes and values, but also factors such as; political, social and ideological barriers following independence. On becoming a Free State in 1922, the National Programme for Primary Instruction (1922-1971) environmental education was made optional in all schools in order to promote education on Irish culture, language and identity. This marked a critical juncture for environmental education and though integrated across different strands in Curaclam na Bunscoile (1971-1999) environmental education continued to be taught at the discretion of the teacher. It is not necessarily a conscious omission in the political system rather an inherited attitude towards environmental education post – Independence as found in the investigation of the Primary School Curriculum (1999-present) which showed little change in the status of environmental education. Due to curricular pressures and time constraints there is limited time available for environmental education. The chapter
discusses the implications of ‘glance cards’ a short-term strategy to alleviate such pressures which did not ‘deload’ the curriculum or improve children’s experiences of environmental education. The subsequent (continuous) lack of adequate teacher training sees environmental education taught at the discretion of the teacher and more often didactic and rational in approaches. Interestingly, the Eurobarometer attitudinal surveys marked the development of environmental attitudes in Ireland but the particular concept of ‘the environment’ is reflective of concepts found in curricula. The emphasis on global environmental concerns overshadows the significance of an emotional connection between people and the natural environment, and possible ignorance of the value of indigenous knowledge and the natural world as part of the sustainability process. The examination of state-funded, semi-state funded and NGO-led environmental education programmes chosen for this research advocate experiential education outdoors. However, the programmes are dependent on a school registering for participation and the number of visitations means they are not regular in a child’s primary education.

**Chapter Five** draws on the theoretical framework developed in Chapter Two focuses on the concepts of education and of the natural environment that underpin environmental education programmes as described by interviewees. It identifies two distinct strands of environmental education provisions in Ireland. Strand 1 emphasises experiential outdoor environmental education, through the senses, and to develop a socially critical approach to human-environment relations, values and beliefs. Programmes are often loosely structured and with no specific educational outcome in mind. Strand 2 exhibits a more rational educational approach, is structured, with a planned outcome that focuses on the resource management solving of environmental problems. The chapter finds that those delivering programmes promote Strand 1 though dependant on school interest and the issues surrounding time constraints and curricular pressures hamper its regularity and effectiveness in a child’s education. School staff and families did not discuss the outsourced programmes offered by educators but did refer to a number of other initiatives
characterised by Strand 2. The GS programme, for example, proves successful with primary schools as it suits the structure of formal education and integrates easily with curricular objectives. The GS programme has more of a rational approach towards the natural environment and focuses on developing an environmental management plan in the school environment. The chapter questions the underpinning concepts of some provisions and to what extent it (re)connects children with the natural environment. The predetermined knowledge transfer of ‘green behaviours’ from school to the home is impressive considering the marginalisation of environmental education, but there is a distinct disconnect between the management of natural resources/green consumerism and the significance of experiential education on a child’s understanding that goes largely unnoticed by research and those involved in teaching and learning. A proposition that environmental education could (dis)connect children further is not unreasonable.

Chapter Six finds new evidence as to how children, parents, school staff and environmental educators distinguish between the concepts of the environment and nature which are at times blurred or contradictory. The chapter finds that environmental educators and school staff often associate a concept of the environment to social responsibility towards prudent resource management and solving environmental problems. On the other hand, a concept of nature infers empathy, emotional connections, and moral obligations toward its welfare. Though conceptual clarity is elusive the differentiations between the two concepts prompted further investigation which provided new evidence for how the learner conceptualises the natural environment overall. Children identify the natural environment as something to fix and to take personal responsibility for solving global environmental issues. Many refer to responsible consumer behaviour that involves the purchasing of Fair Trade or organic produce. On the other hand, many children describe the natural environment with a sense of place, they are creative, build forts and climb trees. In contrast to environmental education literature children portrayed an intimate connection and extensive environmental
knowledge of the natural environment. Furthermore their perceptions of the natural environment, though intricate, show that the emergent patterns are similar to understandings of adult interviewees. This is significant for environmental education as it does not consider children are already environmentally informed and have a connection with the natural environment. However, to what extent current provisions, curricular or outsourced, further enhance children’s understandings is uncertain.

**Chapter Seven** provides new evidence that contradicts contemporary debate in environmental education research. It finds that in contrast to the ongoing debate, children are not necessarily disconnected but rather experience a different type of connection with the natural environment, to those of previous generations. Adult interviewees compare and contrast their childhood experiences outdoors with their perceptions as to how children today interact with their natural surroundings. This research is in agreement (Chapter One) with the majority of adult interviewees that children’s freedom of movement is more restrictive in today’s society. Increased (sub)urbanisation and changing attitudes around notions of fear and risk regarding children’s health and safety influences and shapes children’s connection. However, the children interviewed show that once outdoors, how they emotionally and intellectually respond is reflective of the ‘connection’ discussed in environmental education research. What the chapter shows are the complexities that surround and underpin the concept of a ‘connection’. Furthermore, the investigation of environmental education in primary school as described by adult and child interviewees, finds that irrespective of curricular changes and the availability of outsourced environmental education programmes, their effectiveness in a child’s education is dependent on the interests of an individual teacher or school. Considering the impact of social, political and environmental developments on children’s access to the natural environment, the formal education system does provide an opportunity to enhance ‘informal’ experiences that occur outside of school hours. However, environmental education needs to reassess its understanding of a (dis)connection and question to what
extent current provisions actually enhance the experiences and understandings of children.

**Chapter Eight** reflects on the research objectives outlined in Chapter One, to re-emphasise and debate key findings from each chapter. In doing so, the overall argument is made for how the findings of this thesis make a unique and timely contribution to environmental education research.

### 9.3 Recommendations and areas for future research

The main findings demonstrate that the definition of a connection between children and the natural environment is complex for environmental education. The investigation carried out here illustrates that children have a connection with the natural environment but that current provisions of environmental education do not necessarily enhance their experiences. The concepts that underpin the provisions are at times diametrically opposed as shown by humanistic and the more effective purposive approaches currently available. A balance between rational and humanistic approaches in environmental education is required to enhance children’s connections. Neither should it disconnect from the social, economic, and environmental benefits that underpin it. The data shows that environmental education at school can influence children’s perceptions of the natural environment. However, as a method of (re)connecting children with the natural environment, environmental education ought to reassess what its understanding of a (dis)connect means. It should also look at how it benefits children’s perceptions and the way in which it enhances their experiences of the natural world. Research ought to recognise that children’s capacity to ‘connect’ emotionally and intellectually with their natural surroundings remains - irrespective of developing social, physical, cultural barriers. Within that context this research is concerned that the assumption that *all* children are disconnected overlooks the ingenuity and creativity of children to adapt to changing extenuating circumstances. A place for children to play outdoors is a shared
responsibility that goes beyond environmental education, to the home, school, wider community and ultimately to government level.

This research is opportune given the absence of any official environmental education policy in Ireland. What is evident from this study is that effective approaches to environmental education closely resemble a concept of continuous development whereby environmental resources and problems are managed through rational educational paradigms. This concept of environmental education 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 concept of environmental education does not fully deal with that central (environmental) issue and could develop a sense of helplessness instead of empowerment towards the ecological crises. Furthermore, environmental education as a tool to solve environmental problems underestimates the significance of an emotional connection for social, physical and economic developments as part of the overall environmental sustainability process. Greater collaboration with, and financial support for state, semi-state funded and NGO-led environmental education programmes from government could play an important role in developing a more transparent sector whereby differing provisions are delivered in tandem or rotation. This would develop different facets of the learner and encourage alternative ways of experiencing and learning about the natural environment.

A standardised environmental education organisation, as an advisor for educational institutions, the general public and the media is achievable and desirable. However, to do this environmental education needs to be clearer as to its purpose, aims and objectives. This research recommends that environmental education take a step back, re-evaluate its
purpose and question the benefits of the amalgamation with wider concepts of sustainability. Yes, environmental education is inextricably linked to concepts of sustainability, but as this research reveals, environmental education is rather distinct as it is more established, more experienced in the practical implementation of ideas, and knowledgeable on how to access and engage children with the natural environment. Environmental education can be a leader in the field of sustainability rather than a link in a broad and complex chain. The expertise of environmental educators interviewed for this research further illustrates this point and also reveals the availability of a resource and support system to further develop the sector.

Greater collaboration between educators and the current environmental education programmes is necessary in the development of an independent sector. Educators interviewed for this research experience a sense of autonomy in the designing, content and delivery of their programmes. In fact the majority of environmental education programmes discussed are not regulated, assessed, and evaluated by an overarching organisation that monitors the effectiveness and quality of programmes. To what extent educators and programmes are familiar with one another remains uncertain. A strategy to bring together programmes to develop a policy for environmental education with guidelines and standards for approaches and practices is desirable. This would support those starting off in environmental education and create a regulated forum for networking and sharing ideas across the country and ensure effective learner outcomes.

Whether in a curricular area or as an outsourced ‘informal’ programme, environmental education is directed by the education system which picks and chooses how children experience environmental education. To ‘integrate’ current provisions more effectively there needs to be a major paradigm shift in education towards socially critical education. Contested debate as to the purpose of environmental education is ongoing and therefore, it is unrealistic to expect that change will occur in the near future. Outsourced
programmes play a significant role in providing primary school teachers with a service that helps alleviate curricular pressures and teacher’s lack of confidence with the subject. The knowledge and available expertise as portrayed by environmental educators in this research is wide ranging and with the establishment of a national environmental education sector the status of environmental education in school would be improved. Collaboration between environmental educators and training colleges, for example, would develop environmental knowledge and confidence amongst teachers. Familiarity with environmental education is key during teacher training so as to increase the teaching of it once they are qualified. But environmental education must also go beyond the teacher training colleges. The formation of ‘school-community environmental education partnerships’ would help facilitate regular local field trips and excursions throughout the academic year. A local environmental educator whose expertise and resources would support and guide the community in promoting the different provisions of environmental education can also complement efforts in the school environment.

Children interviewed for this research were predominantly living in a rural or suburbanised area. Future research could expand on the findings from this thesis and include children living urban and city areas. Do children in more urban areas respond differently or are they as environmentally knowledgeable as children interviewed for this research? It is important to note that some children were too young to fully engage in the interview process and that further work ought to recruit children that can converse and understand the topic. This would provide the opportunity to further develop and advance research into children’s understandings and connections with the natural environment. What would also be of interest is a longitudinal study of children’s experiences of environmental education to critically analyse the effectiveness of programmes as children move into secondary (and third) level education. Within that context future research could widen include policy makers, those involved in curricular development and teacher training colleges. What is clear from this research is that environmental education is
interlinked with education and those actively involved in the decision making processes at government level would further develop a strategy for environmental education with the learner in mind.

There is also scope for intergenerational research on the topic of environmental education that focuses on transfer of knowledge between child and adult. This was evident in the findings from parents whose children carefully monitored the energy consumption in the home. However, future research could incorporate a more dialogical understanding of the topic across generations especially as the majority of older generation are quite prejudiced about young people’s engagement with the natural environment and the opportunity to play outdoors. A comparative study with another EU country, for example, would also help develop this knowledge and establish the importance of environmental education research in Ireland.

Ultimately, the findings of this research demonstrate that for environmental education to be effective it must acknowledge the conceptual diversity that underpins it. It needs to be defined and structured in order to build on its relevancy in the overall (environmental) education context. In order to achieve this it must promote and identify itself as a valued asset to education and not merely a supplementary educational experience.
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Appendix A
Interview Questions - EE

Interview questions were flexible so as to accommodate style of interviewee

Interview structure and questions:

1. Did you have an interest in being outdoors growing up?
2. If so, what did you do in the natural environment?
3. As an environmental educator was your interest in the natural environment influenced by siblings or a mentor?
4. Did you grow up in a rural or urban area?
5. Is there a difference, if any, between your own childhood and interactions with nature and children today?
6. Do you think it is important/ not important for a child to have contact and be in the natural environment?
7. Do children like being outdoors? Are there benefits, if any, for children going outside?
8. Did you have nature studies/environmental education in primary school? If so, what was taught and in what way did you learn?
9. Do you think children in primary education now are taught environmental education? If not, why not? If yes, what is your opinion of the content and delivery?
10. Describe your own work/programme/lesson structure?
11. What areas of the natural environment do you concentrate on and why?
12. In your opinion, do children appear to be familiar with the natural environment when outdoors?
13. Is it good or bad in terms of environmental education that Ireland is part of the EU in terms of children’s access/knowledge of nature?
Appendix B
Interview Questions - SS

Interview questions were flexible so as to accommodate style of interviewee

Interview structure and questions:

1. Did you have an interest in being outdoors growing up?
2. If so, what did you do when outside?
3. Was there mentor or sibling influence on the time spent outdoors in the natural environment?
4. Did you grow up in rural or urban area?
5. Do you think it is important/not important for a child to have a contact with nature?
6. Is there a difference, if any, between your own childhood and interactions with nature and children today?
7. In your opinion, do children appear to be familiar with the natural environment when outdoors?
8. Are there negatives/benefits for children going outside?
9. Did you have nature studies/environmental education in primary school? If so, what was taught and in what way did you learn?
10. And are there any differences to between how you were taught environmental education and primary schools today?
11. Is environmental education taught at primary school? How is it taught (referring to curriculum of other programmes). If so, how and in what way is it delivered?
12. Does the curriculum work with the teaching of environmental education?
13. Do you think environmental education be part of home education?
Appendix C

Interview Questions - F

Interview questions were flexible so as to accommodate style of interviewee

Interview structure and questions:

Parent

1. Did you spend time outdoors growing up?
2. If so, what did you do when outside?
3. Did you grow up in rural or urban area?
4. Is there a difference, if any, between your own childhood and interactions with nature and children today? If so, what are they?
5. Is it important/not important that children have a relationship with the natural environment?
6. Are there negatives/benefits for children going outside?
7. Did you have nature studies/environmental education in primary school? If so, what was taught and in what way did you learn?
8. Is environmental education taught at primary school now? How do you think it is taught?
9. And are there any differences to between how you were taught environmental education and primary schools today?
10. In your opinion, do children appear to be familiar with the natural environment when outdoors?

Children

1. Do you play outside? If so, do you and/or like being outdoors?
2. Do you learn about the natural environment at school? If so, what kinds of things do you learn/experience?
3. Do you enjoy learning about the natural environment at school?
4. Can you tell your favourite animal?
Appendix D

Participant Information Sheet

Title of project:  (Re)connecting children and nature?
Mapping the evolution of environmental education in Ireland.

Name of researcher:  Sarah O’Malley
You are being invited to take part in a research study. Before you decide it is important for you to understand why the research is being done and what it will involve. This Participant Information Sheet will tell you about the purpose of this research study. If you agree to take part, the researcher will ask you to sign a Consent Form. If there is anything that you are not clear about, the researcher will be happy to explain it to you. You should only consent to participate in this research study once you have the read and feel you understand what is being asked of you.
Thank you for reading this.

What is the purpose of the study?
The purpose of this study is to examine the relationship between environmental education in Ireland and people’s views about the environment. The project aims to answer the questions:

- How does environmental education influence Irish peoples’ thoughts and actions towards nature?
- What environmental education programmes are available in Ireland for primary school children which offer hands-on contact with nature? Are the programmes effective in bringing children ‘back to nature’?
- Are children in Ireland detached from nature?
- How has environmental education changed over time?
What does the study hope to achieve?
This study hopes to give a detailed account of the role environmental education plays in shaping Irish people’s environmental attitudes and behaviour. As the subject of the research relates to environmental education in Ireland you have been asked to participate because of your invaluable experience gained in the field.

What does taking part involve?
Taking part involves a one to one interview with the researcher. It will not be an authoritative or formal interview process but rather semi-structured with a narrative layout.

Environmental educators
The interview will relate to your continuous work as an environmental educator. Some example of the questions asked will include:

1) Are there any particular reasons you became an environmental educator (EE)?
2) Have you noticed changes in peoples’ attitudes towards nature since you began your work?
3) Can you remember any teachers taking a special interest in nature studies when you were at school?
4) In your own work have you come across many examples of teachers educating their class about nature?
5) Has the inclusion of environmental education in the primary school curriculum in 1999 made a difference to children's knowledge of and exposure to nature?

NB- The answer to this question has two separate parts one for the primary school and one for the guardian or parent of the household.
Primary School
Taking part involves a one to one interview with the researcher in the school. It will not be an authoritative or formal interview process but rather semi-structured with a narrative layout. The interview will relate to your continuous work as an educator and your experience with environmental education in the curriculum.

Guardian/Parent of the household.
Taking part involves an interview with the guardian/parent and children of the household with the researcher. The interview which will take place in the interviewee’s home will be semi-structured and have a narrative layout. The interview will relate to the opinions and attitudes of the household towards nature and also their experience of environmental education in the curriculum.

Do I have to take part?
It is up to you to decide whether or not to take part. If you decide to take part you will be given this information sheet to keep and be asked to sign a consent form. If you decide to take part you are still free to withdraw at any time and without giving a reason. A decision to withdraw at any time, or a decision not to take part, will not affect your rights in any way.

How long will my part in the study last?
Your part in the study will consist of one interview lasting approximately two hours.

What are the possible disadvantages and risks in taking part?
There are no foreseeable risks attached in taking part in this research.
Who will see the research?
The research project will be kept a secured room in the School of Sociology and Political Science.

What will happen to the information I give?
The information that you give to the researcher will be used in a research study, which the researcher will put forward to obtain a PhD in School of Sociology and Political Science, NUI Galway. When completed, the study will be available for students to access in the NUI Galway library.

Whom do I contact for more information or if I have further concerns?
Please do not hesitate to contact Sarah O’Malley at NUI Galway, 091-495405, if you have any queries or questions.

If you have any concerns about this study and wish to contact someone independent and in confidence, you may contact the Chairperson of the NUI Galway Research Ethics Committee, c/o Office of the Vice President for Research, NUI Galway, ethics@nuigalway.ie.

Thank you for taking part
Appendix E
Adult Consent Form

Title of Project:  (Re)connecting Children and Nature?
Mapping the evolution of Environmental Education in Ireland.

Name of Researcher: Sarah O’Malley

Please initial box

1) I confirm that I have read the information sheet dated…………for the above study and have had the opportunity to ask questions.  

2) I am satisfied that I understand the information provided and have had enough time to consider the information.

3) I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason, without my legal rights being affected.

4) I agree to take part in this study.

______________________________  ____________________________  ____________________________
Name of Participant  Date  Signature

______________________________  ____________________________  ____________________________
Researcher  Date  Signature

1 for participant; 1 for researcher; 1 to be kept with research notes
Appendix F
Child Consent From

Child Consent Form & Information Sheet
1 for participant; 1 for researcher; 1 to be kept with research notes

My name is Sarah O’Malley and I would like to know what you think of nature and the environment?!?

**Information**

Would you like to talk to me for 15 minutes’ with your parent(s)/guardian?

Anything you say will be kept private and in a safe place. Your name will also be kept private and not be used in the completed project.

**What is nature to you?**

Learn about nature in school?

**Do you like nature?**

**Consent**
If you **do want** to talk to me about what you like or do not like about nature please circle the smiley face!

If you **do not want** to talk to me about nature please circle the sad face!
Appendix G

Flyer

Are Children (dis)connected from Nature?

Would you like to take part in a study focusing on environmental education in Ireland?

My name is Sarah O’Malley and I am a PhD student with the School of Political Science and Sociology, NUI, Galway. The study will involve a recorded interview in your household with both children and parents.

If you are interested:
Contact: Sarah O’Malley
Phone: 091-495405 or 087-7971695
Email: s.omalley5@nuigalway.ie
Appendix H

Letter to Environmental Educator

14/09/2009

XXXX

Dear Mr. /Ms. X,

My name is Sarah O’Malley and I am an Irish Research Council for the Humanities and Social Sciences scholar currently enrolled in the PhD research programme with the School of Political Science and Sociology at NUI Galway. My research project entitled, (Re)connecting children and nature? A Sociological Study of Environmental Education in Ireland is intended to give a detailed account of the role of environmental education in shaping Irish people’s environmental attitudes and behaviours past and present. I will be focusing mainly on primary school children, parents and environmental educators in Ireland. The research is progressing very well since commencing in September 2008, and I have now reached my data collection phase.

Considering your own expertise as an environmental educator in Ireland, I was hoping you would agree to participate in a recorded interview. The interview will be informal in style and will focus mainly on your own experiences gained in the area of environmental education in Ireland. I am planning to conduct the interviews between September and November 2009. I would be most grateful for your time and assistance as your input would make an important contribution to my research work.

I look forward to talking to you in the near future.

Sarah O’Malley (PhD cand.)
Irish Research Council for the Humanities and Social Sciences scholar
Email: s.omalley5@nuigalway.ie, Phone: 091-495405
Appendix I
Letter to School Staff

14/04/2010

XXXX

Dear Mr. /Ms. X

My name is Sarah O’Malley and I am an Irish Research Council for the Humanities and Social Sciences scholar currently enrolled in the PhD research programme with the School of Political Science and Sociology at NUI Galway. My research project entitled, *(Re)connecting children and nature? A Sociological Study of Environmental Education in Ireland* is intended to give a detailed account of the role of environmental education in shaping Irish people’s environmental attitudes and behaviours past and present. I will be focusing mainly on primary school children, parents and environmental educators in Ireland.

I would be very grateful if you and one other staff member would agree to participate in a recorded interview. The interview will be informal in style and will focus mainly on your own experiences of environmental education in the primary school curriculum in Ireland. I also hope to meet with parents and school children also. I understand that at this time of year you are very busy however I would be most grateful for your time and assistance.

I look forward to talking to you in the near future.

Sarah O’Malley (PhD cand.)
Irish Research Council for the Humanities and Social Sciences scholar
Email: s.omalley5@nuigalway.ie, Phone: 091-495405
Appendix J
Family - Pictures

Family 2, 13th May 2010 (O’Malley, 2010)

Family 2, 13th May 2010 (O’Malley, 2010)
Family 3, 19th May 2010 (O’Malley, 2010)

Family 5, 20th May 2010 (O’Malley, 2010)
Appendix K
School Staff - Pictures

SS2/SS3, 21st April 2010 (O’Malley, 2010)

SS2/SS3, 21st April 2010 (O’Malley, 2010)
SS4/SS5, 7th May 2010 (O’Malley, 2010)

SS6/SS7, 10th May 2010 (O’Malley, 2010)
### SPECIMAN TIME TABLE GIRLS SCHOOL

**Showing Number of Minutes devoted to Subjects each day**

<table>
<thead>
<tr>
<th>Day of the week</th>
<th>Reading</th>
<th>Spelling</th>
<th>Grammar</th>
<th>Writing</th>
<th>Composition</th>
<th>Arithmetic</th>
<th>Kindergarten</th>
<th>Drawing</th>
<th>Object Lessons and Elementary Science</th>
<th>Cookery</th>
<th>Needlework</th>
<th>Singing</th>
<th>School Discipline and physical Drill</th>
<th>Recreation</th>
<th>Total number of Minutes</th>
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</tr>
</tbody>
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Girls School (C.N.E.I., 1902, p. 16 cited in Hyland, 1975, p. 51)