

<http://researchspace.auckland.ac.nz>

ResearchSpace@Auckland

Copyright Statement

The digital copy of this thesis is protected by the Copyright Act 1994 (New Zealand).

This thesis may be consulted by you, provided you comply with the provisions of the Act and the following conditions of use:

- Any use you make of these documents or images must be for research or private study purposes only, and you may not make them available to any other person.
- Authors control the copyright of their thesis. You will recognise the author's right to be identified as the author of this thesis, and due acknowledgement will be made to the author where appropriate.
- You will obtain the author's permission before publishing any material from their thesis.

To request permissions please use the Feedback form on our webpage.

<http://researchspace.auckland.ac.nz/feedback>

General copyright and disclaimer

In addition to the above conditions, authors give their consent for the digital copy of their work to be used subject to the conditions specified on the [Library Thesis Consent Form](#) and [Deposit Licence](#).

**Finding the Way Through The Trees: Shining Light
on Young Children's Play Dates with Nature**

Lucinda Murch

**A thesis submitted in fulfilment of the requirements for the degree of
Master of Education
The University of Auckland
2015**

Abstract

Nature-based play environments offer children an important source of interactions and engagement with nature. This research in a local context, adds to a growing body of research and accumulating evidence on the influences of nature play. In responding to the question: In what ways does nature-based play enhance children's learning opportunities in New Zealand early childhood settings, the aim was to shed light on play dates in nature within these particular settings. Qualitative descriptive data was gathered to address how these regular play dates with nature influence children's learning. The tools of storytelling, narrative, interpretation and poetry were chosen to illuminate the findings of this research. These stories and poems unfurled in parks, gardens, farmland, woods, reserves, neighbourhoods and communities that are distinctly New Zealand. The evolving research story looked at finding the way through common worlds of play and learning, children and adults, flora and fauna, nature and nature-based settings.

The research findings expose five key 'F' words as recurring conceptual themes in the multi-site case study. The key factors are children looking at nature through '*fresh eyes*', when given '*frequent*' access to '*familiar*' natural places. The '*freedom*' to explore the natural world of '*flora and fauna*', with time and space and adults as significant others, compels us towards new understandings of these experiences. These important factors of nature play have been observed as having a positive influence on learning. Strong links to the principles, strands and goals of *Te Whāriki*, the New Zealand early childhood curriculum place further value on nature experiences in early childhood settings.

This research story concludes that children need to have regular access to diverse natural elements, whether in small natural settings, large naturalised play spaces or anything natural in between. Natural elements and multi-sensory natural environments are the key factor in igniting children's curiosity, wonder, fascination and exploration that enhances and enriches developing learning.

Dedication

**I dedicate my nature play research story to
Molly Rose Murch,
my first grandchild**

**In the spirit of love and sharing
experiences together, may I ‘light’ the way of
endless possibilities for Molly, as she ‘lights’ up
my world, with every new and wonder-filled
encounter we share**

Acknowledgements

Firstly, I would like to thank the children, teachers and early childhood centres who participated in this research. Thank you for leading the way in provision of nature-based play settings and for allowing me to engage in nature experiences with you.

I would like to extend sincere thanks to my supervisor, Dr Carol Mutch for starting me off on my research journey, guiding me through ethics approval, data gathering and the initial writing of this research story. I am also grateful for your guidance and encouragement at the end of this research journey. You helped me to celebrate my findings and the ‘good parts’, as you guided me through my writing style and the parts that needed ‘working on’. With your honest but gentle feedback you have guided my work through to completion.

I also offer sincere thanks to my co-supervisor, Dr Marek Tesar, who in Carol’s absence guided me through the main body of my writing. Thank you for remaining positive and enthusiastic about my research focus and for setting crucial time frames for completing sections of my writing. Marek you inspired me to put it all together and share a research story worth telling. Your spirit of encouragement and positivity enriches my research story.

With the utmost love and support, I thank my family – my husband Gary, children Anthony and Emily, Christina and Willem, Julia, and my beautiful granddaughter Molly. I will no longer hear the familiar words spoken: “Have you got much more to do?” (Like hearing “Are we there yet?” on a road trip). My spot at the table writing night after night and day after day, will now be vacant.

Special thanks to Fiona Hickling, the best friend any person could ever hope to have. Thank you for your continual interest, support, faith and loving strength you gave me throughout this two-year research journey. I am glad we got to share some of the nature experiences together – you have been my sounding board, my rock, my way through the trees and my forever friend.

Contents

Abstract	ii
Dedication	iii
Acknowledgements	iv
Contents	v
Chapter One: Introduction	1
A story worth telling.....	1
The context of my research story.....	2
The nature phenomenon.....	5
Entangled and complex relationships and connections.....	7
Theoretical perspectives.....	8
Defining ‘Nature’ and ‘Nature-based’ settings.....	10
‘Nature’.....	10
‘Nature-based’ play settings.....	12
The value of play in nature-based settings.....	13
Nature-based play – a journey through the landscape of our past.....	14
Lost Connection.....	16
The characters – the children, the adults and researcher.....	17
My own story – inspired by people and place.....	18
Overview of my research story.....	19
Summary.....	21
Chapter Two: Literature Review	22
Where do the children play?.....	22
Perspectives on nature play.....	25
Papa-tu-a-nuku (Earth Mother).....	26

1. Childhood play experiences in nature	28
Significant life experiences.....	29
Challenging the romantic notions of nature play.....	33
2. Nature play settings – a rich context for play and learning	34
Child’s choice.....	35
Loose parts – sticks, pinecones, leaves and more.....	36
Viewing nature as an important influence in child development.....	37
Cognitive benefits.....	37
A wide range of benefits.....	38
Affordances – natural invitations to play.....	39
3. But when, where and how will the children play?	40
‘Nature deficit disorder’.....	41
A sense of place – spaces and places for play.....	42
Historical perspectives – nature play trends.....	42
Summary of literature: Why nature play?.....	43
Chapter Three: Methodology	46
Between stories.....	46
Research focus.....	47
Naturalist approach.....	48
Research context.....	49
Setting the scene – children’s spaces and special places.....	50
Theory of affordance.....	51
Qualitative research design.....	52
Children as social actors.....	53
Ethnographic engagement.....	55

Research relationships.....	56
Child’s voice.....	59
Ethical considerations.....	60
Data analysis.....	61
Shedding light through creative approaches: finding my way.....	62
Concluding thoughts.....	62
Poetic approach.....	64
Chapter Four: Rhythms of the Day in Nature-based Play.....	65
Diverse settings – similar nature-based provision.....	67
The value of remembering.....	69
Section One: On Top of the World (Setting 1).....	72
Freedom.....	73
Out of Bounds (Poem).....	73
Familiarity – the world that is opening up.....	79
Nature’s loose parts.....	83
Stick Boy (Poem).....	83
Section Two: The Children’s Garden (Setting 2).....	87
The ‘troll’ bridge.....	88
A secret place.....	90
Gleeful play.....	91
Grassy slope story.....	92
Section Three: Meadow Views (Setting 3).....	97
Volcanoes and dinosaurs.....	98
Lost and found.....	99
Lost <i>then</i> Found! (Poem).....	100
Way finding.....	103
Time in nature continues in Meadow Views.....	105

Out riding – bikes, horses and cars.....	106
Summary.....	107
Chapter Five: Recurring Nature Play Themes.....	109
Fresh eyes, frequency, freedom, familiarity, flora and fauna.....	109
1. Fresh Eyes: Child researchers with inquiring minds.....	110
Fruit tree haven.....	115
2. Frequency and accessibility.....	116
Fruit tree haven one week later (3-3-14).....	117
3. Freedom: Time and space.....	120
Expressions of Time (Poem).....	121
4. Familiarity of place and the concept of affordance.....	123
Familiarity.....	123
Affordances of nature.....	124
5. Flora and Fauna: Nature’s loose parts.....	127
Stick Boy Too (Poem).....	129
All creatures great and small.....	132
Merry mudlarks, a dead possum and beautiful birdlife.....	132
Caring for a dead monarch butterfly.....	134
Ladybird, ladybird fly away home.....	135
Summary.....	136
Chapter Six: Conclusion.....	137
Implications.....	144
References.....	146

Appendices	162
Appendix 1: Sample Transcript.....	162
Appendix 2: Strands of <i>Te Whāriki</i> showing links to nature settings.....	164
Appendix 3: Participant Information Sheet (Centre Owner).....	165
Appendix 4: Participant Information Sheet (Parent of child).....	169
Appendix 5: Participant Information Sheet (Adult).....	173
Appendix 6: Consent Form (Centre Owner).....	177
Appendix 7: Consent Form (Parent of child).....	179
Appendix 8: Consent Form (Adult).....	181

Chapter One: Introduction

A story worth telling...

If you don't know the trees you may be lost in the forest, but if you don't know the stories you may be lost in life

(Siberian Elder)

This old Siberian folk saying, warns that just as it could be harmful to be lost in the forest, it could also be harmful to deny the human essence of storytelling through which people make meaning and formulate worldviews. Shared stories, like trees in the forest that line our path, guide us along life's journey of layered relationships. They shape our understanding of who we are, where we come from, what we value and how we understand the world.

This research uses the approaches of storytelling, narration and research poetry to focus on the re-storying of the deeply embedded relationship between nature and children. This story worth telling is my research story, structured around the description and the interpretation of children's nature play experiences. The experiences retold in this research, are set in three nature-based early childhood settings, in New Zealand. As social agents in the stories represented, the children discover the trees, forests, animals and other diverse natural elements. The social interplay of children, adults and natural elements in these settings, is then described in depth through narrative transcripts and poems.

Unlike an imaginative fairytale, romantic novel or gripping thriller in which the reader interprets and makes meaning of the story themselves, my qualitative research

story leads the reader through the different layers of my study. My research story is presented in a way that assists in analysing and interpreting the qualitative data.

Young children's learning may potentially be influenced by the provision of nature-based play settings. It is therefore, these social settings in which children are immersed in, that are presented to the reader through a cycle of looking and listening, conversing, describing, narrating, reflecting and interpreting.

The overarching question addressed in my research is: ***In what ways does nature-based play enhance children's learning opportunities in New Zealand early childhood settings?*** Connecting to this overarching question, will also be contributing questions asking: *What does nature play look like for children in natural play spaces within New Zealand early childhood settings? How do opportunities to engage with nature and natural elements in a nature-based environment, influence children's play and holistic development?*

The context of my research story

From a personal perspective, my intent to present interpretive early childhood research with a focus on nature play emerges from my early years as a child spent playing in natural environments. My background as an early childhood educator working alongside children in natural settings also connects to my research focus. These personal connections are presented as an analytical tool for understanding the context of my research story and new journey as a critical researcher. As an adult, it is through my own experiences in nature, that I already perceive the benefits of play in natural settings.

My researcher stance, therefore, evolves from personal values and experiences that include my pre-understandings of the field of nature-based settings from my

childhood, as well as my early years teaching practice. As a nature play educator and researcher, I have similar philosophical beliefs to the early childhood settings that I visit in my fieldwork - relating to children, play and actively learning in nature. I also have similar beliefs to the families choosing to send their children to these settings. These shared beliefs are about play experiences in a nature rich environment being important for connecting children with the natural world, important to children's learning and important to their sense of freedom and fun.

Expressed in the opening words of my thesis, are my values and beliefs around shared storytelling to describe life experiences and shape understanding of these experiences. I believe that as children play they tell a story through their actions and interactions. Looking and listening to these stories and expressing my understandings of the experience, is then communicated through a layering of prose and poetry throughout my research story.

Further to this, my name, 'Lucinda', means 'light', which links with a personal kinship from within to 'shed light' or 'light the way'. This kinship underpins my quest to view ideas through different lenses. By this, I mean to ask questions, to see things about children and others in new and different ways, to challenge habitual patterns of thinking, and to make a difference in the lives of others, through illuminating my thoughts and understandings. My emergent research identity links to the experiences and views of Punch & Oancea (2014), in their description of education research practices, as constituting "reflective and imaginative work, situational understanding, deliberation, sensibility and voice" (p. xix).

My overarching research story resonates from a socio-cultural perspective, recognising that children and others, are not isolated beings, but children and others, as members of families, peer groups and other social groups such as early childhood centre communities. "Sociocultural theory suggests that participation in cultural processes and communicating with others in close and trusting relationships are the means through which we come to know our worlds" (Smith, 2013, p. 38).

Smith (2013) also argues, that in order to know more about children's worlds:

it is necessary to integrate Childhood Studies with sociocultural theory, to highlight that there are multiple possible pathways to learning in the contexts of social relationships with other people, culture and the tools of culture, rather than a single pathway (Smith, 2013, p. 39).

These multiple pathways to learning, link to the sociocultural perspective that frames my research story and the metaphor of finding the way through the pathways in the forest. The central principles, strands and goals that underpin *Te Whāriki*, the New Zealand early childhood curriculum statement (Ministry of Education, 1996) are also woven from this same perspective of multiple pathways to learning and development. Within the framework of *Te Whāriki*, the principle of relationships recognises that learning is influenced by “reciprocal and responsive relationships for children with people, places, and things” (Ministry of Education, 1996, p. 9).

With a similar understanding that learning is appropriate to people, places and things for all learners, my research reflects on my own story, my experiences with others, and the special places that I have experienced. It also reflects how a sociocultural perspective has influenced my teaching practice, as an emerging early childhood educator in the 1990s and beyond. In the context of my research, all these understandings are interconnected with my focus on nature-based experiences and relations between young children and nature, in early childhood settings.

My research resonates with the work of other scholars, and in particular, contemporary theorist and writer, Vivian Gussin Paley (2004) and researcher, Enid Elliot (2011). Paley (2004) writes about children playing in early year settings and schools. Elliot (2011) theorises her research of young children in early childhood settings, through a voice that reflects her understandings as both educator and researcher. Both Paley and Elliot present their work from a sociocultural perspective and in a way that reflects the same principle and significance of relationships in *Te Whāriki* (Ministry of Education, 1996). By this, I mean respectful relations where

children, other learners and beings, learn through observation and engagement in diverse communities and settings.

Paley (2004) and Elliot (2011) speak using story-telling methodological practices, allowing for dissemination of understandings to a wider audience. Paley's strength lies in the way she describes play in fine detail as it unfurls (Bruce, 2004) and reflects on what she sees and hears (Pound, 2011). Through my sharing of nature play narratives, I too endeavour to describe play as it unfurls in the context of nature-based early childhood settings. In a similar style to Paley, through analysing and weaving play narratives together, a story about children's and researcher's understanding of nature play is created. Furthermore, like Paley, I recognise myself - the researcher, as an important part of the story.

Similarly, Elliot's (2011) strength lies in her principle that young children are knowledgeable about their own experiences and their own lives and that closely looking and listening to children will enlarge and enrich pedagogical practice. Elliot, in Elliot & Gonzalez-Mena (2007) speaks of using stories to illustrate a point, to help approach a situation creatively, or to illustrate another perspective. Furthermore, the way she uses a rights-based lens that requires listening to young children and actively inviting their perspectives (Blanchet-Cohen & Elliot, 2011), connects to my view of 'finding the way'. Finding the way to gain clear vision and answers to my research questions and finding my way as an ethical researcher. This can be seen as moving forward in an academic, theoretical and critical context, but also with an imaginative story-telling voice.

The nature phenomenon

Qualitative research and participant observation are fundamentally exploratory tools of social research (Berger, 2013) and are used in my research story to reveal real life

nature play experiences, underlying what people say and do in a nature-based early childhood education context. Bergey (2013) suggests that the process of persistent exploration nearly always leads to discovery, with the outcome of producing something that would be useful to others:

For in the end, when we approach a phenomenon that is important to us, that we believe has value to others, and we do so thoughtfully, methodically, open-mindedly, reflectively and with the help of knowledgeable others, the deck is stacked in our favour from our very first question (Bergey, 2013, p. 151).

Reflecting on this quote, I can see that my study begins with a phenomenon that is important to me and that I believe has value to others. My research has then been approached methodically, open-mindedly, reflectively and creatively. The phenomenon that I focus on is the provision of nature-based play in New Zealand early childhood settings. This nature phenomenon can also be viewed as a current trend in early childhood education and care in New Zealand. A trend that is evident in the number of publications focusing on nature-based learning and sustainability, and in the number of specialised workshops and conferences focusing on nurturing and learning in nature. There are also a number of early childhood settings currently choosing to use 'nature-based themes' in their centre names. Examples are: Nature's Explorers, The Secret Garden, Nature's Way, Natural Learning, Kowhai Kids and Dragonfly Nest.

For some early childhood settings in New Zealand, the nature phenomenon also involves the provision of nature-based settings for outdoor nature play and exploration, either within the centre grounds or in the form of regular visits to local nature-based environments. Nature-based play in this context can be viewed, in part, as providing young children with an opportunity to play in nature, in response to natural environments that are disappearing in the lives of many children. It is this support of reconnecting children with nature, and providing spaces in which children can play regularly in nature, that will be explored further in this research.

Entangled and complex relationships and connections

As a researcher, my aim is to present a research story through a data collection process that can be viewed as a method of understanding and reflexivity of the nature play phenomenon, rather than of explanation. My research story provides insight into the complex relationships and connections that are entangled and viewed from within nature-based early childhood settings, including between the child and adult participants in my study, and myself as researcher. Qualitative research, has much in common with how we find things out in everyday life, and is therefore viewed as a connected endeavour. This connected endeavour pertains further to a sociocultural perspective, in that we continually create and construct our social world by negotiating with others the meanings of our actions and interactions.

My research story, for instance, describes young children in direct experiences in outdoor nature-based settings displaying curiosity, exploring, researching, asking questions and making sense about the world as they play. Simultaneously, as the young child participants in my research, engage in their own observing and researching of the natural world around them, they are also being observed and researched by me, as we engage in play and nature discoveries independently, alongside each other and, at times, together.

Through reflective thinking, I describe in chapter five, how from my own observations of participants within this study, I have been drawn to explore and delve deeper into the current nature phenomenon and relationships between children, nature and others in these settings. As Affrica Taylor (2013) argues in her book *Reconfiguring the Natures of Childhood*, the worlds of nature and childhood, “are not sanctified, pure and innocent *separated* worlds, but worlds that are always already full of inherited messy *connections*” (p. 62).

Instead of focusing on child-centred learning and an exclusive focus upon the needs of the individual child, Taylor urges early childhood educators to attend to children's real world relations with others and their environment. She suggests, relationships that recognise interdependencies, mutual vulnerabilities and responsibilities, with a reframing of 'nature' and 'childhood'. Taylor's (2013) 'commonworlds' approach can be viewed, as the enmeshing of children and natures, a view that she suggests has become a matter not just of scholarly research, but also of our very survival as a species.

My aim throughout this study, similar to Taylor's, is to be open to the voices of other peoples, and other beings, in other places, looking from within and with an emphasis on the connections and relationships between. Taylor's simultaneous perspective reconfigures the socially constructed human grouping of children as 'childhood', to human beings in their own right. At the same time, views of Nature that are commonly reduced to a singular, fixed and containable presence are expanded to a more active sense of the natural world (Taylor, 2013). This denaturalising of what is taken to be natural and normal associations of childhood with nature is just one-way of understanding the nature and child relationship from within early childhood settings. Emerging from a challenge by Taylor (2013) to depart from these normal associations of childhood with nature, different perspectives and theories will be explored in my research relating to the spaces and places provided for children, in the context of nature-based play.

Theoretical perspectives

Theories give us frameworks through which we can make sense of human behaviour and development. Furthermore, theories help us to explore and gather evidence about the value of play in developing learning (Bruce, 2004). In this research, I specifically look at nature play and nature-based settings for their value and potential influences in developing learning.

Identified in my research story, through the play narratives presented in chapters four and five, are links to a number of play and child development theories. In the first instance, young children are observed as independent explorers and researchers in the nature-based early childhood settings that they experience on a regular basis. The children, not the adults, are often the ones in these settings being identified as directing the learning. This observational viewpoint is influenced by Piaget's (1929) work on play and theorising that knowledge comes from personal experience. The social context and social components for learning are then emphasised by Vygotsky's (1978) social constructivist theory, underlining the contribution to learning made by others. This approach is very evident in my observations.

Vygotsky, like Piaget, viewed children as explorers on a quest to understand their environment, constructing their knowledge as they explored. Bruner (1983) expanded upon this with the concept of scaffolding. This concept of supporting children in their learning links to accounts of my own childhood experiences in nature where I learned from significant others. Scaffolding is also evident in the significant life experiences of nature play authors when their literature has been reviewed. Similarly, in the narratives in my research story, collaborative learning with peers and adults, in nature-based settings, is described. These accounts all emphasise the important learning that takes place in a community of learners, and the essential role of the adult or more competent child, in providing leadership and guidance to the child through interaction. Garrick (2009) suggests that natural settings are particularly effective in promoting cognitive development, where there is regular and shared interaction. This interaction involves scaffolding, sustained shared thinking and sharing of detailed knowledge of flora, fauna and natural elements.

Dewey's (1938) concept of experiential learning also contributes to understandings of nature play, based on the idea that learning through first-hand experience of something, is deeper and more meaningful to the individual. This provides a rationale for exploratory play in natural settings, as young children make meaning from their surroundings through interacting with it.

Theoretical models provide useful frameworks for exploring the complexity and influences on children's learning and development from time spent engaged in nature play, within nature-based settings. Nicholson's (1971) theory of loose parts and Gibson's (1979) theory of affordance are further frameworks that contribute to the understanding of children's relationship with nature. These concepts will be expanded on further in the next chapter. Although there are different approaches and early childhood theories, the one common principle is that early childhood curriculum and practice should be attuned to the needs and interests of the children and their relationships with others.

In my research I explore young children and their relationships with nature that are described, as messy and implicated by Taylor (2013). I take into account that both children and the researcher are learning through relationships. This perspective is consistent with the views of Meier & Sisk-Hilton (2013), who suggest that learning in nature "is a process of exploration, communication, creation, and discovery with others" (p. xvi). I explore young children and their connections with others, as they create and co-construct knowledge by exploring the physical natural world through independent, collective and relational practices – that is, through a social constructivist perspective.

Defining 'Nature' and 'Nature-Based' Settings

If a good research story is a means through which the reader builds understanding, it is necessary to examine terms like 'nature' and 'nature-based' play settings that are not self-evident. These are complex terms with multiple understandings and as with most everyday phenomena, recognition of its components or qualities is easier than defining precisely what it is. Horne (2010) suggests that two researchers asked to define 'nature' would undoubtedly give two unique or even conflicting answers.

'Nature'

In their biophilia hypothesis, Kellert & Wilson (1993) claim that we as human beings

have a universal, innate connection to nature. But what is meant when we speak of the clearly subjective terms, natural world, or nature? ‘Nature’ can be described as one of the most complex words in language. With the use of the word ‘nature’, comes the complexity of the natural world and the ongoing thinking about what constitutes ‘nature’ and how we make sense of our relationship with nature. As with many complex terms, its complexity is often concealed by the ease and regularity with which we put it to use in a wide variety of contexts on a daily basis. The definition of what makes an environment natural therefore can change across time, space, and with the individual engaged in the defining (Bratman et al, 2012).

‘Nature’ can be defined as the wilderness that is remote, untouched and uncontrolled and also that which is not made by humans. This definition distinguishes between human-made and natural elements. But wilderness is only one category from a broad range of definitions. The commonly perceived scientific view of the world is nature defined as the natural physical world of plants, animals, rocks and soil, or fauna and flora. Nature can also be viewed as the interdependent ecosystems of the planet that support and nurture all life forms. In other terms, nature is not identified by individual species of plants or animals, but by the responsiveness, connectedness and intertwining that draws them all together (Davis, 2010). “For a child, nature is found in a variety of places or objects, such as a pet, a tree, a dandelion, a seashore, or a vacant lot” (Louv, 2005). I suggest that it is found in the interplay of all these natural elements, in the natural world.

‘Nature’ then, is of its nature an uncontainable topic. Nature is not fixed but fluid. There are dominant discourses of nature that can be seen as both competing and in contradiction, yet shared and overlapping similar constructions of nature at the same time. It is important to understand, too, that by giving voice to a speechless entity such as nature, we inject our own human voice, however well intentioned, and thus affect the definition of nature under our construction (Taverna, 2008).

For the purposes of this research study, nature includes plants and nonhuman animals across a range of landscapes. Nature is found in rural areas, in forests, mountains,

woods and streams. Nature is also found in suburban and urban areas, in the trees, shrubs and rocks, in the backyard gardens at homes, city parks and reserves, and wild urban areas. Nature is also in the communal spaces such as community gardens, and in the spaces built for children in our early childhood centres, schools and community centres for outdoors exploration and play.

‘Nature-based’ play settings

The following definitions help to describe what early childhood nature-based play settings look like within geographical concepts of space, place, location, environment, land and landscape. ‘Nature-based’ play spaces can be defined as having diverse natural elements such as vegetation, topography, flora and fauna; as well as being diverse in terms of play spaces, play opportunities, use of senses and spontaneity.

Natural play spaces are primarily natural process driven (Fjortoft & Sageie, 2000), and like all activities within an early childhood curriculum the focus should be on the process as it unfolds and not the end product (Cross, 2012). My research story can be viewed with this same focus, as an exploratory process of describing and analysing nature-based play experiences, as they unfold.

There are complications with describing and analysing children’s natural play spaces or landscapes. As Fjortoft & Sageie (2000) suggest, as adults we perceive the landscape as forms, whereas children will interpret the landscape and terrain as functions. Adults may predict an outcome based on forms within the landscape such as vegetation, topography and habitats, whereas children will use these spaces based on the functions and processes afforded by the nature-based play environment.

Most commonly, natural play spaces include areas such as forests, fields, woodland areas, nature reserves and parks. They can be defined as spaces that offer higher levels of biodiversity, topographical diversity, habitat diversity and higher sensory stimulation with the provision for hands-on contact with nature. It is suggested by some researchers, that diversity is something that is inherent in the natural landscape

and cannot be developed as richly in the constructed or artificial landscapes that are made for children (Fjortoft & Sageie 2000; Louv 2005, 2008; and Nabhan & Trimble, 1994).

The value of play in nature-based settings

Buckminster Fuller, scientist and architect of the geodesic dome, has been quoted as saying: “Playgrounds should be renamed ‘research environments’ because that is what children are doing so vigorously. They are finding out how the universe works” (cited in Keeler, 2008, p. 33). These are the children’s playgrounds or the natural outdoor settings that are referred to in this study. Children are born researchers and scientists. They naturally ask questions and crave experiments through hands-on opportunities. “Nature is a living scientific laboratory for play and learning” (Cross, 2012, p. 37).

Scandinavian studies demonstrate the value of natural outdoor space for children’s activity and play, suggesting that children use the variety of forms offered in these spaces to a high degree (Fjortoft; 2001, 2004; and Fjortoft & Sageie, 2000). According to Fjortoft’s studies, the affordances of natural spaces are even more valuable if they are spaces that are not necessarily predetermined as a space for children’s play and activity. Spaces in other words, that will have varied terrain, undergrowth, vegetation, and loose parts, for children to carve out as a place of their own either individually or collectively. The theory of affordances (Gibson, 1979) and the concept of loose parts (Nicholson, 1971) will be interwoven through later chapters.

A variety of benefits and skills such as wondering, questioning, exploring and investigating, discussing, reflecting, and formulating ideas and theories are honed in nature (Chalufour & Worth, 2003 cited in Cross, 2012). Cross herself (2012) suggests every time a child climbs a tree, jumps a fence, or rolls down a hill, their bodies, minds, and spirits are exercised.

Many researchers and authors argue for regular childhood bonding with nature places, for children to benefit from nature play experiences (Cobb, 1977; Kahn, 1999; Keeler, 2008; Kellert, 2002; Louv, 2008; Nabhan & Trimble, 1994; Orr, 2002; Pyle, 2002; Sobel, 2008). They suggest that children merely need to have access to natural elements, whether in an environment completely void of human influence or within a constructed but naturalised play area. This argument becomes the central focus of my research, in discussing the observations of three different nature-based early childhood settings. Chapters four and five describe similar play scenarios with children bonding with nature, in all three settings. This is regardless of the amount of natural elements and the extent of which they are naturally wild or naturalised.

‘Nature-based’ spaces in early childhood settings, in my research, include any of the varied definitions researchers use to describe outdoor areas where natural elements are abundant and diverse, and offer the affordance of play, exploration and rich sensory experiences and provocations.

Nature-based play – a journey through the landscape of our past

Historically, children and outdoor nature-based play went hand in hand. The children and nature relationship today is no longer synonymous, as increasingly children spend time indoors. Children used to have access to the world at large, ranging from their own large backyards and the neighbourhood parks and reserves, to the rural countryside of fields, forests and creeks. Children could play, explore and interact with the natural world with little or no restriction or supervision.

The last four decades, in particular, have seen the relationship between children and nature changing, partly because more than half of the world’s children live in urban settings (Sobel, 2008). Empty sections of land and fields, reserves, bush areas, creeks and ditches, or just urban parkland are shrinking. In areas where natural play environments are still available, parents’ fears and concerns about traffic, abduction

and taking risks, makes these places unavailable to children today. Access to natural environments is increasingly sporadic due to increased time spent with programmed activities and the advent of television, video games, computers and the Internet (Faber Taylor & Kuo, 2006).

My research story shifts the focus from the barriers that are distancing children from the natural world, to the positive influences of time spent in natural settings. In an enlightening focus I discuss the potential benefits that children may receive from nature experiences and natural settings, from physical, psychological and spiritual health benefits, to cognitive development. This links to my overarching research question, in that I am seeking to collect data that describes children's nature-based play in New Zealand early childhood settings. From the descriptive observations, I ask, in what ways this engagement in nature play can be seen to enhance children's developing learning.

Until recent times, there has been little research or planning for natural play spaces for children. This was particularly so in New Zealand where most children lived close to fields and forests or knew family members or friends that owned farms. Miller et al (2009), suggest in today's culture, both play and time in nature have become endangered species. There is now accumulating research that has been undertaken to investigate and demonstrate the value and impact of these nature-based play experiences. Expanding on this, the assumption that a caring and responsible behaviour towards the natural environment is closely related to people's feelings of personal connection to nature, finds support in nearly every piece of research and literature related to children and nature. This will be explored in more depth in the literature review section of chapter two.

Children's access to nature has traditionally been a significant component of outdoors play and learning in early years practice in New Zealand. The New Zealand early childhood curriculum, *Te Whāriki* (Ministry of Education, 1996, p. 90) states that children need to have a "relationship with the natural environment and knowledge of

their own place in the environment”. More recently, the trend of providing regular access to natural spaces has become an internationally current topic among parents, educators, researchers, action groups and governments (Dowdell et al, 2011; Fjortoft, 2004; Kytta, 2006; Louv, 2008; Miller et al, 2009; Tovey, 2007; Wells & Lekies, 2006; Zaradic & Pergams, 2007). This is due to environmental crisis issues, the emergence of environmental education and a call for action to reconnect children with nature, due to a play deficit and ‘nature deficit disorder’ that are perceived to co-exist (Louv, 2008; Miller et al, 2009).

Lost connection

Richard Louv, in his book *Last Child in the Woods* (2005) termed the phrase ‘nature deficit disorder’ to describe the phenomenon of children losing their connection to the natural world. His work brought together his own nature experiences and studies that pointed to direct exposure to nature as essential for a child’s healthy development. Louv’s updated edition (2008), discusses the accumulating studies and growing body of evidence that suggests a generation of children has lost its connection to the natural world. A children and nature movement has been fueled by Louv’s fundamental idea that “the child in nature is an endangered species, and the health of children and the health of the Earth are inseparable” (Louv, 2008, p. 355).

Although there are accumulating studies and international nature movements supporting the reconciliation of children and nature to prevent ‘nature deficit disorder’, there is little research literature in the context of New Zealand. Many of us intuitively believe that nature plays an important role in healthy child development and that exploring the outdoors has played an important role in New Zealanders’ childhood consciousness. We are thwarted by a lack of research literature documenting the ‘real lived’ environmental experiences of New Zealand children. If nature-based play evokes positive memories of freedom, adventure, independence, friendship and imagination in our older generations, then how does nature resonate in the lives of young New Zealand children today? I will now set the scene for my

research story and discuss my reasons for wanting to unfold descriptions of current nature experiences for young children, in nature-based early childhood settings.

There is a case to be made to research nature play experiences in early childhood settings in New Zealand, to explore the potential benefits and influences on early learning from more time spent in nature. Researching and discussing the childhood-nature relationship, may also assist in preventing nature deficit opportunities for young children. It may draw attention to the design principles of spaces for children to play and learn; shape new early environmental education dimensions and brings about greater discussion on the human-nature relationships present in and across different socio-cultures.

The characters - the children, the adults and researcher

The characters in my research story are the real human participants, and therefore the stories I share about the children have real meaning and tangible consequences. The stories I share capture the richness and fullness of the lived nature-play experiences by the children and adults in the early childhood settings and provide ‘insider’ perspectives. As I observe in my role as participant-observer, and I am sometimes invited by the children to be involved in their play scenarios, I have been able to gain real insights from my reflections. These insights are important to share, and I am compelled to tell.

Recognising my position as researcher and writer in this thesis writing process, I recognise that I cannot tell entire life stories of the participants. I cannot possibly grasp the full complexity of the nature play phenomenon nor completely capture the richness of the lived nature experiences for all children. This is a research story limited in scope, but it is still a story worth telling...

My own story - inspired by people and place

Just like a favourite story, the spaces and experiences that surround us and connect with us when we are children, become in the course of time, inner landscapes that we incorporate into childhood memories (Pyle, 1993).

A story starts with an author and an idea for a plot, and likewise a case study starts with a researcher's story. This research story begins by seeking answers to particular questions, in particular settings, with a particular focus. What did I want to find out? Why did I want to find this information out? Why did I choose this method of finding out?

Resonating with Pyle's quote above, my research story begins with an interest in studying nature play that is linked to a personal passion for nature experiences in natural settings. This passion and love of the outdoors came about from the shared experiences in nature with my grandfather. I have vivid memories of picking fresh fruit and vegetables together, from his luscious garden and orchard, where his special place also became my special place. Sharing responsibilities of caring for and rearing calves fostered a love of animals and being outdoors. My childhood memories also recollect long days spent outside with the neighbourhood children and very little adult supervision. These play experiences that have been incorporated in to memory, include climbing the oak trees in the park that backed on to the neighbouring properties, building huts and playing in the creek, on a daily basis.

My childhood experiences led me to wanting a similar childhood for my own children. This then extended to the numerous children that attended an early childhood centre that I founded on my ten-acre rural property. My personal and professional experiences in early childhood education continued to foster my curiosity of the potential benefits of regular nature play experiences in childhood.

There are many reasons to think that nature plays an important part in the development of young children. Assertions that nature is good for children, often

stem from personal experiences and observations in the natural world, romantic childhood memories and personally held perspectives. Passed on traditions, trends and intuitions that we hold, also contribute to notions that nature is good for children. These personal and socially constructed perspectives are also entangled with theories, arguments and research that is consistent with the notion that contact with nature is important for child development (Faber Taylor & Kuo, 2006).

Sobel (2008) suggests we have to get a sense of what nature-based experiences look like, and if they really make a difference to children's learning and development before deciding on whether they are important enough to pursue. My focus has been to observe and investigate young children's experiences in nature-based early childhood settings. Stemming from these observations is the aim to open up conversation with educators and early childhood providers, to create, give, receive and share new meanings as they relate to children and nature in the twenty-first century.

The nature play research topic in this study is inextricably linked to my own lived events. It connects my special places and people in my childhood. It links with my play memories, education, ongoing personal and professional influences, family beliefs and values. It is expressed in my understandings of the world and constructions of knowledge. All these threads interconnect. These beliefs and practices are embedded in the person I have become and becoming. They undeniably determine my focus and theoretical stance as a researcher.

Overview of my research story

Chapter one sets the context of my research story. I introduce my interest in the child-nature relationship, and my emerging identity as a researcher who values direct observation and storytelling of nature-based play in early childhood settings. I introduce core research components, including my rationale for this nature-play study,

methodological practices and theoretical perspectives that underlie my research questions. This introductory chapter examines the ways in which children as social actors influence their social circumstances. It further notes the ways in which children's learning and development is influenced by these social situations. A direct research focus on children's experience is used to examine how children make meaning and develop learning in their nature play. This is explained, as best shown through their interactions and relationships with other beings and people, places and things.

Chapter two presents a literature review of nature play sources, setting the scene for my research story. Three overriding themes emerge from the literature, laying a foundation for the reader in terms of current understandings of nature play in educational settings and the lives of children. The review of literature also informs the subsequent methodological decisions chosen to carry out the research.

Chapter three outlines the methodological decisions that guide my research story. I use qualitative methods, in a multi-site case study to gather descriptive field notes relative to the subjective nature of 'nature' and 'nature-based' play settings identified from the literature. Chapter three's methodological decisions precede the presentation and interpretation of the qualitative data from fieldwork and research notes.

Chapters four and five make up the main body of my research story, providing concurrent description, analysis and discussion of findings. While the nature play narratives and field notes may speak for themselves, at the same time they trigger theoretical explorations and interpretation that will be interwoven through the stories. In Chapter five, common conceptual themes are described and supported by observational evidence. These common themes inform discussion that leads to my overarching thesis statement.

Chapter six is the final section of my research story, concluding with implications for curriculum, pedagogy and practice surrounding nature-based play and learning in a New Zealand early childhood context.

Summary

My research story has been created from a purposive study of selected participants, through direct experience and participant observation of three nature-based early childhood settings. This empirical research results in generating a rich collection of nature-based play stories. My overarching research story is the re-telling of this set of stories gathered from observing the participants. It will be told based on the stories being descriptive, exploratory and interpretive to uncover deeper meaning and understanding.

My intention as researcher and storyteller is to guide the reader on a research path through the chapters. I will do this by illuminating meaningful experiences within my story, so as not to lose the way in the forest. I use the image of the pathway through the forest, as a metaphor for branching out and finding our way through the common worlds of children, adults, researcher and other beings. From experiences observed and shared within nature-based early childhood settings, understandings of children and nature relationships can be shaped or reshaped.

Chapter Two: Literature Review

Where do the children play?

I know we've come a long way. We're changing day to day.

But tell me, where do the children play?

(Song lyrics, Yusuf Islam, formerly Cat Stevens, released 1970)

Back in 1970, the song “*Where do the children play?*” with the repetitive chorus lyrics, raised the issue of diminishing children’s play and the lack of spaces for children to play. The lyrics in this song reflected how society had progressed a long way through technological advances, but simultaneously raised concerns relating to urban sprawl, ecological disaster and the future of humankind. This song explored the changing landscape of growing up by asking the question: Where do the children play? One could say that Islam’s song was trying to convey a message far ahead of its time. This message, however, may still ring true today. It could be viewed as a contributing question to this critical review of literature exploring children’s play in the natural world.

This literature review sets the scene for my layered research story. All research has history and a story to tell. As with the song lyrics, the existing literature on outdoors nature play for young children will be critically examined. The analysis of the literature will build understanding for educators, playground designers, landscapers and others in the field of nature play. I examine claims that there are potential learning benefits to be gained from nature play and explore how existing literature relates to my own research.

My intent is to uncover the themes and discover new patterns among the literature reviewed. My rationale is to understand nature-based play experiences in a distinctly New Zealand context. I will look to how children interact with the natural or

naturalised playground while identifying any significant themes relating to this engagement. There are different perspectives on how to define ‘nature’ and ‘nature-play’ and there are also different ways of looking at the child-nature phenomenon.

Some studies have focused on older children (Kellert, 2005; Lester & Maudsley, 2007; Malone & Tranter, 2003; Moore, 1989, Sobel, 2008). Other studies have been conducted in existing school and early childhood settings where natural materials have been added to their outdoors environments (Horne, 2010; Maxwell et al, 2009). Another group of studies has been conducted in intentionally designed outdoor environments (Bohling et al, 2010, Malone & Tranter, 2003; Moore, 1989; Sobel, 2008; Stephens, 2007, Wake, 2007). These similarly focused, yet different studies will be explored through weaving together their different perspectives on the benefits of nature play.

Three overriding themes have emerged from the research literature on children’s nature play and natural play spaces. These themes are now introduced and analysed with the understanding that in today’s complex world we are required to branch out in different directions and ways, to receive light of knowledge.

The first theme in the research literature is that of *childhood play experiences in nature, associated with environmental attitudes in adulthood*. This perspective relates to the views of adults as they recall and theorise about their childhood experiences in nature. It links to reflections on my own personal nature relationship, as a researcher with a nature play focus. I will therefore, begin my review of literature with personal memories. Garrick (2009) suggests these can provide a powerful starting point for seeking children’s perspectives on outdoor play.

The second theme requiring further exploration evolves from the repeatedly made assertions in the literature, that there are many *benefits for children who regularly engage in play in natural settings*. What can be drawn from studies that have already been undertaken? Taylor & Kuo (2006) suggest that we may have leaned in favour of intuition regarding experiences in nature, versus research. A review by Gill (2011), of 61 nature play studies provides very good evidence of links for natural play environments providing developmental benefits, rather than cause-and-effect. Through an analysis of the research on experiences and time spent in natural environments, I will explore potential links between children's nature experiences and benefits for children's developing learning. My own research study aims to add to the evidence base, by describing and identifying children's skills, interactions, and developing learning.

Emerging from the first two themes are the perceived *concerns associated with less time spent in nature and the increasingly limited access to natural play spaces*. For current and future generations this alienation from nature could affect children's cognitive development, physical health, emotional wellbeing, and environmental stewardship. Does the growing evidence base empirically support claims that contact with nature makes a real difference to children's lives? Or does it really matter that children in the developed world, encounter less direct experiences with nature? Nature play literature will be examined to delve in to claims that there are negative consequences for less time spent in nature as a child.

Early childhood settings with inclusive natural play environments or with the provision of regular nature-based outings, are viewed in the literature as ideal settings for providing nature-based outdoor play experiences for today's young children (Miller et al, 2009; Sobel, 2008; Taylor & Kuo, 2006; White, 2014). It is suggested that the greater the amount of exposure to nature, the greater the benefits (Wells and Evans, 2003). I will look at the literature in relation to this premise for early childhood education, and discuss how this relates to the current nature play phenomenon in New Zealand early childhood settings.

Perspectives on nature play

Play can often be seen to be a spontaneous and natural part of life, in which children engage to amuse and to occupy themselves. The question is often asked: Does play help children to learn? In my research, the overarching question is: *In what ways does nature-based play enhance children's learning opportunities in New Zealand early childhood settings?*

As an educator, based predominately in nature-based settings, I have observed first hand spontaneous, innovative, and creative nature play. I have noted young children's quality engagement and attunement with nature and others in those settings. This engagement conveys that children have a strong relationship to the natural world. My anecdotal observations link to the research findings of others (Miller, Tichota and White, 2009; Kytta, 2006) who report that natural environments are dynamic play spaces that provide renewed challenges as children grow, learn and develop. Added to this, when children are engaged in authentic nature play, they are seen to be developing skills in a variety of domains simultaneously. I seek to investigate this complex and at times taken-for-granted connection with nature, through different perspectives. These perspectives on nature play support an understanding of young children's play. In particular, I will consider the implications unstructured nature play has on learning, in nature-based settings.

Early childhood education has traditionally placed a strong emphasis on playing and learning outdoors (Pound, 2011). In the 21st century, there is a renewal of questioning 'where will the children play?' New Zealand has strong traditional ties to the natural environment. This includes Māori perspectives of kaitiakitanga, or guardianship and manaakitanga, or care. These Māori perspectives deeply incorporate interrelationships between people, place, the land and others. They provide further links to an ethical and sociocultural approach to this research, placing important value on people being kaitiaki or guardians of the natural world to ensure success of our future generations.

This deep-rooted love of the land and playful connections to the Earth are depicted in Hone Tuwhare's (1978) poem:

Papa-tu-a-nuku (Earth Mother)

We are stroking, caressing the spine
of the land.

We are massaging the ricked
back of the land

with our sore but ever-loving feet:

hell, she loves it!

Squirming, the land wriggles
in delight.

We love her. (Bornholdt et al, 1997, p. 242)

Many New Zealanders have positive and fondly recalled memories of times spent in nature. Their memories evoke a sense of freedom, adventure and connection to the land (Freeman, 2013). But like other countries in the Western world, children are experiencing very different childhoods from those experienced by previous generations. Freeman (2013), asks how do these recalled play memories resonate in the lives of children today?

Children's lives have become increasingly scheduled (Horne, 2010) with more structured activities dominating children's lives. Children's free time is dwindling. The free time that they do have is often spent in passive indoor activities such as watching television or playing computer games. In chapter one, I noted how children today are said to be suffering from 'nature deficit disorder' (Louv, 2005). "While this negativity has generally been targeted at children growing up in the US, Britain and Australia, increasingly Aotearoa New Zealand too is picking up on these notions" (Freeman, 2013, p. 65).

Louv (in a presentation at the Natural Phenomena conference, New Zealand, November, 2014) emphasised how environments today have changed and that the amount of nature play has declined. He pushed the premise that play in natural environments is a fundamental part of developing children's versatile skills, creativity, problem-solving abilities, collaboration and learning. He noted how the Internet search company *Google*, looks more favourably on new recruits who recall playing in nature as fundamental play memories.

Brown (2009) supports Louv's view that immersion in the natural world is a central aspect of healthy child's play. Brown (2009) states that high-tech industries such as *NASA's Jet Propulsion Laboratory* have also altered their hiring policy. They give high priority to those candidates with nature play backgrounds in their youth, finding them to be their best overall problem solvers. Play in this sense, is understood as a fundamental part of innovation and creativity appropriate to a whole range of subjects, careers and industries. Innovative and playful people are viewed as skilled pioneers of new technologies and endless possibilities.

What happens when children spend time in natural environments and what happens if they do not? There is a gap in the research that can be addressed in my study by showing what the real play experiences of children in nature look like. This will help distinguish between children being able to generate their own play to help themselves, and not being able to generate their own play. This inability may be due to a number of socio-cultural circumstances such as increased traffic, a fear of abduction, urban sprawl, smaller gardens, an earlier start to school and an emphasis on academic attainment (Gill, 2007). My research story is introduced as a way of understanding how the inability for children to access natural environments has arisen. We can then address the negative effects through research findings and discussion of what may be gained from reconnecting children to these places.

The more socio-cultural changes restrict children's freedom to play, the more we should look to the play spaces being offered by early childhood centres and schools, to offer solutions. This is where children spend a large amount of their day. Do these

environments enable children to generate their own unstructured play? A review of the evidential support for claims about the benefits for children in nature-based early childhood settings will be explored. Does the literature hold insights relating to the positive influences on children's learning or does it create negativity around a gap in childhood experiences that needs filling?

1. Childhood play experiences in nature

A common thread embedded in much of the literature on nature play is a description of the childhood environment that was experienced by the authors, researchers, editors and contributors to the literature. Similar childhood memories of playing outside and experiences in nature are recollected and repeatedly appear as introductory or supportive narratives in the literature (Chawla, 2006; Horne, 2010; Louv, 2005, 2008; Miller et al, 2009; Pyle, 2011; Sobel, 1993, 2008; Tovey, 2007). These accounts of time spent in nature as a child, are made as nature connections to their chosen career path, their interests in life, as well as their advocacy for reconnecting young children with nature and nature play.

In chapter one, I described my personal relationship with nature and my childhood memories of nature experiences. On reflection, I can see that my attraction to studying nature play has been woven from a personal passion for nature experiences and a love of the outdoors shared with me by special people, in special places. We can feel attachments to a place and as Tovey (2007) suggests, place is a space imbued with feelings and meaning in our lives. My own nature story is rooted in the gardens, parks, nature reserves, farms, neighbourhoods and communities of my early years. It is however, the spaces that young children today transform into their own special places, and endow with their own meanings that I wish to explore in this study. These places offer protection from what Pyle (2011) calls the 'extinction of experience', or a loss of opportunities to play and explore. A further exploration of the notions of space and place will be discussed later in this chapter.

Significant life experiences

In the late 1970s, environmental educator, Tom Tanner, instigated studies to explore the idea of childhood experiences influencing people's environmental attitudes and stewardship in later life. Tanner (1980) referred to his studies as 'significant life experiences' research, looking at the formative life experiences of conservation leaders and researchers by employing autobiographical reminiscence. This early qualitative research produced literature that reported on a critical connection in the field of nature-child relationships. This critical connection was seen as childhood play in natural environments being a precursor to environmental attitudes, actions and careers in adulthood.

The work of Tanner was followed by a succession of research carried out around the world. Peterson and Hungerford (1981) and Corcoran (1999) posed similar questions to environmental educators in the United States. Palmer (1993) studied environmental educators in the United Kingdom. Chawla (1999) conducted open-ended structured interviews with established environmentalists in the U.S. and Norway. Sward (1999) studied El Salvadoran environmental professionals. These international studies uncovered similar results to Tanner (1980) of proenvironmental attitudes and behaviours.

The two most frequent answers given as the reasons for formative experiences and attitudes were first, the special places linked to positive nature experiences in childhood, and second the special people acting as role models within these special places (Chawla, 1999; Hsu, 2009; Myers, 1997; Palmer et al, 1998; Wells & Lekies, 2006). This links to my fondly remembered early years experience with my grandfather and with older peers. These special people acted as nature loving role models and provided scaffolding of learning in special places. In my childhood, these special places represented places of active engagement, creativity and fun as a child. Linking back to chapter one, these places are my grandfather's garden and the

neighbourhood reserve where a number of children gathered each day. In my adulthood, they are remembered as influential places where collaborative, unstructured, unsupervised and innovative free play dominated time and space.

Significant life experience studies provide compelling evidence that childhood nature experiences can impact on later life environmentalism. However, the exclusive focus on individuals engaged in environmental careers or activism, limits these findings. Later research has been conducted among the more general population using a large representative sample of urban-dwelling adults, rather than a select group of environmentalists (Kellert, 1985). In a more recent study, from a life course perspective, further connections are made between childhood involvement with the natural environment, and adult environmentalism (Wells and Lekies, 2006).

The Wells and Lekies (2006) study, suggests that early experiences can set a person on a particular trajectory toward an outcome, which will persist unless a turning point occurs, resulting in a shift to a different trajectory. Specifically mentioned are experiences such as childhood participation in 'wild' nature such as hiking or playing in the woods, camping, and hunting or fishing. Participation in 'domesticated' nature such as picking flowers or produce, planting trees or seeds, and caring for plants in childhood have also been shown to have positive influences on adult environmental attitudes and behaviours.

My research links to the life course perspective of Wells and Lekies (2006), in that I look at the same types of childhood experiences in a range of nature settings, but from an early childhood and New Zealand perspective. I examine whether children given the opportunity to participate in nature-based early childhood settings on a regular basis, may be turning points for the future. Does this participation set children on a particular life course trajectory? Does this exposure to experiential learning with, in and about nature lead to positive nature perspectives? In contrast though, I seek answers to these questions through observing children today, rather than looking back. Observing children as they engage in regularly occurring nature play experiences.

Research on adults who participated in nature experiences as children, has been criticised because it looks retrospectively back at distant childhood experiences. These studies may rely heavily on a romanticised view of childhood recollections. The romantic view is one where childhood and nature seem like a perfect match and where young children are often declared to have a natural affinity with nature. This affinity with nature is an ethological perspective developed by American biologist, Edward Wilson (1984), and is commonly referred to as the theory of biophilia. This view has led to an idea of both childhood and nature, “being in a state of innocence, authenticity and purity, to be protected from the contamination of adults and society” (Taylor, 2013, p. ix). Further on in this chapter, Taylor’s challenge of the romantic view of the childhood-nature relationship is explored further.

Horne (2010) suggests that “when a child’s connection to nature leads to interest in protecting nature as an adult, nature benefits” (p. 4). The main reason however for discussing this life experience research is the other side of the child-nature relationship. A relationship that suggests, children themselves benefit substantially from nature contact in intellectual, emotive, and physical development (Kellert, 2005).

Some authors suggest that childhood experiences with nature are particularly important in children’s development (Horne, 2010; Kellert, 2002; Louv, 2005; Pyle, 2002,). These ideas however, are typically based on adults reflecting on their childhood rather than studies during childhood itself (Derr, 2006). If reflecting on our childhoods, when we are adults is questionable, I wonder how we can expect children to analyse their own childhoods when they are still children, living in that particular moment and time? I suggest that it is only once we reach adolescence or adulthood that we can look back and analyse our childhoods, and discuss how experiences in the early years have influenced our worldviews and understandings, looking forward.

Horne (2010) adds further to this discussion, in suggesting that as children communicate with other children or engage in self-directed thinking, connection with nature on a deeper level may occur. She states that, “such experiences cannot be documented when happening, but only through research of adults relating their childhood connections to nature” (p. 6).

The difference between the adult who is able to recall memorable nature experiences of childhood and the young child encountering a natural space or an environmental experience in real time, relates to my methodological choices in my nature play study. Do I gain glimpses of childhood experiences in nature through interviews of adults, as in significant life experience studies; or do I choose to use qualitative observational methods that gather an in depth understanding of how children currently experience the natural early childhood setting? My choice to observe child participants reflects the view, that in order to add to the evidence base of nature play research, descriptive data is required to show what nature play looks like in real nature-based spaces. Observing how children as social agents with their own perspectives, make sense of these outdoors spaces, in real time, will help establish the relationship between the natural environment and what children can benefit from play dates with nature.

Those who study children’s experiences with the environment, tend also to advocate for unstructured, spontaneous play in spaces (Derr, 2006). Many champion the need for children to experience natural places as part of their development for example (Chawla, 2002; Kellert, 1997, 2002; Kong, 2000; Moore and Wong, 1997; Orr, 2002; Pyle, 1993, 2002). Is this advocacy based on their observations of children’s play, or their intuition, childhood memories and possible romantic notions? In conducting qualitative research in a multi-site case study of early childhood nature-based settings, I seek to add to evidence based empirical literature, with my own observations, findings and interpretations that are grounded on children’s real life experiences; rather than anecdotal, retrospective and intuitive understandings.

What do we really know about the value of nature in promoting child development? What evidence is there, for or against the optimisation of time spent in nature? Does it really matter whether children have contact with nature, if this is simply a romantic notion? Or on the other hand, if contact with nature is as important to children as good nutrition, healthcare, exercise and adequate sleep, then current trends in children's access to nature need to be researched further to give evidence of more than just a casual link (Faber Taylor & Kuo, 2006).

Horne's (2010) research links to her work in landscape architecture and design of play environments. She suggests that the study of the relationship between children and nature is at the edge of many fields of research including environmental psychologists, social scientists, landscape architects, and pediatricians. Each field offers its own contribution but Horne (2010) and Kellert (2005) suggest there are noted absences in the research. For example, Kellert (2005) states that "environmental psychologists consider how children could learn about nature, more often than what they benefit from it" (pp. 64-65). For this reason, it is my aim to focus more on the benefits for children's learning rather than the reasons for children spending less time in nature, with potential negative consequences.

Taylor & Kuo (2006) suggest that there is a great deal of encouraging evidence linking green space to important developmental outcomes. The report findings of Gill (2011) in his review of 61 nature-play studies, states that contact with nature can be seen as "part of a 'balanced diet' of childhood experiences that promote children's healthy development, well-being and positive environmental attitudes and values" (p. 8).

Challenging the romantic notions of nature play

During this current time of nature-based early childhood education revival, Taylor (2013) has recently challenged the romantic notions of nature and childhood that she refers to as being difficult to dislodge and relinquish. Taylor argues that we need to

rethink and reconfigure our entrenched and romantic understandings of nature and childhood, with a shift of allegiance from nature to ‘naturecultures’ or common worlds.

The deeply embedded relationship between childhood and nature could be viewed as a dominant discourse in the traditions of the western world; and a romantic coupling of childhood with ‘nature’, that Taylor is currently researching further. Rather than viewing early childhood pedagogies as ‘natural’, Taylor (2013) critiques whether we should be designing pedagogies that are more attuned to the ‘common worlds’ that we cohabit with other species.

Taylor (2013), contests conventional wisdoms pertaining to the romantic relationship we often have with nature, but also offers some new unconventional ones. The introduction of new concepts such as ‘naturecultures’ and common worlds help to reconceptualise the child-nature relationship, to queer the natures of childhood and reconfigure them as enmeshed natureculture common worlds. Rissotto and Giuliani (2006), also present a view that knowledge and understandings are not only accumulated through new information, but also through the integration and restructuring of various types of information. As already discussed in the first chapter of my research story, my study looks at the experiences, interactions and stories of peoples, places and things in an open minded, interpretive approach that may lead to further restructuring or reconfiguring of the child-nature relationship.

2. Nature play settings – a rich context for play and learning

The second theme to be explored in this review of literature on nature play is the claims in the literature; that there is a range of benefits for children who regularly engage in play, in natural settings. These claims are sometimes acquired through studies that seek the child’s perspective of what they like about natural settings and what they offer them; but predominantly evolve from studies where adult perspectives

are given, looking from the outside with an adult perspective; into the play world of the child often designed by adults; or from adult childhood experiences.

Child's choice

When given the opportunity, children choose, and enjoy playing in natural environments and/or with natural elements because of the overwhelming play potential of such spaces (Cobb, 1977; Hart 1979; Moore 1986; Titman 1994; Chawla 2002; Spencer and Blades 2006). Nature play environments are often viewed as provocative, inviting curiosity and exploration, and with infinite play possibilities. "Children interact with the environment almost like a play partner, shaping and transforming it, but in turn being shaped by the experiences and interactions it enables" (Tovey, 2007, p. 54), but is this how the child or the adult sees the engagement and attunement with nature?

There is little research on nature play that includes the perspectives of children, or describes what nature-play really looks like for children. My research story aims to add to previous literature, by being a participant observer, richly describing children's nature play in early childhood settings. This immersion in nature-based settings will be discussed further in the next chapter. It is based on the premise that the gathering of a vivid picture and better understanding of nature play, is best achieved through the eyes and voices of children directly engaged in nature experiences.

A study of children's perceptions of playgrounds (Armitage, cited in Tovey, 2007) found that while equipment initially attracted children to playgrounds, it was the natural features such as grass, flowers, trees, shrubs, bushes and trees, which children rated highly and sustained the play for longer. This research compares to another study where Finnish preschoolers were asked where they wanted to play (Hyvonen & Kangas, 2007). Almost all the ideas given by the children were connected to nature, with the setting and scenery, the details of the weather and different kinds of plants described.

Further studies have described children's affinity and attraction for the natural environment (Chawla, 1988; Kaplan, 1995; Sobel, 1993; Wells & Lekies, 2006; Wilson, 1984). When children have a choice, it appears that they prefer natural environments to play in (Moore, 1986; Titman, 1994 in Tovey, 2007 p. 68), but as suggested by Spencer & Blades (2006), the environments *of* children are not always environments *for* children. In many cases, play spaces for children are at best, designed for them by adults, and at worst they are the spaces left over from the 'adult world'. Therefore, listening to children more, and viewing them as experts in their own lives, could affect adult's perspectives on providing regular access to natural play spaces and the spaces they plan for children's play. My intent is to gain a vivid description of what children's nature play looks like, and to examine the functionality of the spaces that children make their own, within the settings provided for them. This focus will be a fundamental aspect of my research.

Loose parts – sticks, pinecones, leaves and more...

A recent Danish study found that outdoor kindergartens were better for stimulating children's creativity (Vigso and Nielsen, 2006). One explanation given for these findings was the 'loose parts' theory in education (Nicholson, 1971), which holds that the more loose parts there are in an environment, the more inventive and creative the play, and the greater possibility of discovery. In a field, the woods, an empty section, a park, a garden or even one tree, the number of loose parts is unlimited.

Nicholson (1971) argued that the loose parts criteria outlined in his theory, does not present itself in many schools and playgrounds and therefore in human terms, these environments do not work. He suggested that architects and builders have all the fun with designs and materials, and that fun and creativity have been stolen from children and the resulting environments. Instead, the play environments meant for children are "clean, static and impossible to play around with" (Tovey, 2007, p. 74).

Viewing nature as an important influence in child development

Evolving from the research on a childhood affinity to nature, researchers have suggested that in recent generations there has been a loss of opportunity to play and explore in nature (Louv, 2005; Miller, 2005; Wells & Lekies, 2006; Zaradic & Pergams, 2007). The predictive outcome made by these researchers, is that less direct experiences with nature could result in decreasing numbers of people as future environmental stewards, but could also impact on the development of young children themselves.

To demonstrate the value of nature play and the impact of less time spent in nature, there has been a growing body of qualitative research undertaken. A number of studies have provided convincing evidence of a variety of beneficial effects on children. These benefits range from psychological or cognitive wellbeing (Faber Taylor et al. 1998; Faber Taylor, Kuo and Sullivan 2001; Faber Taylor, Kuo and Sullivan 2002; Wells 2000; Wells and Evans 2003) to motor development and coordination benefits (Fjortoft, 2000; Fjortoft 2004). These benefits will now be expanded on.

Cognitive benefits

A study comparing preschool children in a setting with a traditional playground, with others whose play area was nature-based; showed that exposure to nature benefits the cognitive functioning of children, through greater powers of concentration (Grahn et al, 1997). A study by Wells (2000) also showed links to higher levels of concentration in children, living in homes with natural views and more natural yards.

The kind of play that occurs in natural spaces tends to be cognitive and innovative play that promotes oral language development, problem solving, creativity and cooperation (Louv, 2007; Faber Taylor & Kuo, 2006; Malone & Tranter, 2003). Through a series of projects aimed at measuring and understanding the relationship between nature experiences and the well-being of children and adults, Faber Taylor & Kuo (2006) found that time spent in natural spaces resulted in benefits for children's

self-esteem, sense of self, and ability to pay attention and concentrate. In particular, Kuo and Faber Taylor (2004) found that children diagnosed with Attention Deficit/Hyperactivity Disorder experienced a significant improvement in their ability to concentrate after they had spent time outdoors in (non-paved) green spaces. Yet they also noted that it is difficult to separate the impact of the natural environment itself from the impact of the hands-on learning that often happens there (Faber Taylor & Kuo, 2006).

When children spend time outdoors in natural spaces, it has also been suggested that this links to a marked increase in their interest in the natural world, enhancing their understanding of nature, biodiversity and their later environmental knowledge (Chipeniuk, 1995; Fjortoft, 2000; Tovey, 2007).

A wide range of benefits

Through experimental designs, Fjortoft (2004) demonstrated that preschool children who play in natural environments with irregularly sloped surfaces showed greater coordination than did those who played in traditional playground settings. Children who played regularly in natural environments showed more advanced motor fitness, including coordination, balance and agility. They were also sick less often compared with other preschoolers who played in the more commonplace playgrounds designed by adults for children. These playgrounds had fixed structures and fixed play activities (Grahn et al, 1997; Fjortoft & Sageie, 2001). It is suggested that as children move around in rugged terrain and cope with physical challenges, their motor ability improves. Although few in number, these studies indicate that the natural environment is a stimulating arena for motor fitness training (Moore & Wong, 1997; Fjortoft, 2001). We still know far too little about how the natural environment functions as a playground for children, therefore this is an area that my observations of children as they naturally play in natural environments, will be able to contribute.

Recent nature play research has documented and analysed learning through authentic nature play experiences within the context of a Nature Explore classroom. A Nature

Explore classroom is a natural early childhood setting, but one designed and naturalised as a space for children to explore nature and natural elements (Miller et al, 2009). A further study comparing two early childhood settings with contrasting outdoor environments (Dowdell et al, 2011) also adds to descriptions of nature-based settings by early childhood providers. Findings from both studies suggest that natural environments support children's play and learning better. This is in contrast to more traditional outdoor playgrounds and regardless of whether the natural elements are naturally wild, or natural by design and construction for the purpose of children's engagement with nature.

The natural environments and natural play elements observed in the studies mentioned above, allowed for the play spaces to become a place of learning. Specific skills were developed across several developmental categories. The learning of skills was seen as being learnt experientially and through the senses. In this way the learning was more meaningful for the children. It was also in contrast to a heavy emphasis on learning skills to validate learning and knowledge, which may be pushed in some early childhood settings (Dowdell et al, 2011; Miller et al, 2009).

Affordances – natural invitations to play

One way of looking at the relevancy of the outdoor nature play environment is through the theory of affordances. The concept of affordance (Gibson, 1979) referring to what the environment offers. Natural play spaces afford children endless play opportunities. These play opportunities arise from the interaction between the physical properties of the environment and the interests, ideas and intent of the individual. Outdoor play spaces enable children to exercise greater choice over materials, location and playmates (Rogers and Evans, cited in Tovey, 2007, p. 18).

Fjortoft and Sageie (2000) and Fjortoft (2001) pointed out a strong relation between the diversity of landscape and the affordance of children's play. They noted this as a

strong link between what play possibilities were being afforded by the natural environment's varied and vivid invitations. The topography, like slopes and rocks, afford natural obstacles that children have to cope with. Vegetation provides shelters and trees for climbing, and meadows or fields are for running and tumbling.

Trees are a good example of natural features that offer a large number of potential play affordances. Trees can be climbed and hidden behind, they can become forts or bases and with their surrounding vegetation and roots, they become dens and little houses. Trees can also provide shelter, landmarks and privacy. When fallen, they become part of an obstacle course or material for den building. Being near trees, you find birds, insects, little animals, fallen leaves and pinecones. Trees provide a suitable backdrop for every conceivable game of the imagination.

3. But when, where and how will the children play?

Two strains of thought have emerged through the literature of children growing up with nature experiences and the impact on the development of the child. The first is that direct experience with nature is important in the development of young children. The second is that, direct experiences with nature are less readily available, resulting in what Pyle (1998) referred to as the "extinction of experience". It could be suggested that the interconnections of these two perspectives has incited an intense interest in reestablishing childhood play outdoors and reconnecting children to nature.

Taylor (2013) also suggests that this resurgence of interest in natural pedagogies is associated with concerns about children's increasing alienation from nature in today's technology-dominated world. Alongside this is the growing awareness of the significant environmental challenges we all face. As a way of responding to this resurgence, reconnecting children to nature is often presented as a way of rescuing children from this alienation (Taylor, 2013). Emerging from calls to action in reconnecting children with nature and playing outdoors, there has been a current trend

both internationally and nationally, to provide nature-based experiences for young children in early childhood settings.

‘Nature deficit disorder’

Exploring the outdoors has played an important role in New Zealanders’ childhood consciousness. For many of us we intuitively believe that nature plays an important role in child development. There is however a lack of qualitative and quantitative research in the context of ‘real’ environmental experiences of New Zealand children. How does nature-based play that evoked positive memories of freedom, adventure, independence, friendship and imagination in older generations; resonate in the lives of children today?

A growing number of adults including educators, play experts, environmentalists, child development specialists, health professionals, researchers and organisations across different fields, have identified their concerns around children being alienated from nature. There has been a recent and growing call to action, to reconnect children with nature in order to reduce the perceived play deficit and nature deficit disorder that co-exist (Louv, 2005; Brown 2009 cited in Miller et al, 2009). But is different necessarily worse?

Increasingly, New Zealand is picking up on these notions of significant changes occurring in the environments that children experience and nature-based early childhood education is undergoing a revival. Nature-based early childhood education is undergoing a revival with the resurgence of interest in natural pedagogies to address children’s increasing alienation from nature in today’s technology dominated world.

Some researchers believe that these changes in environment across generations, have led to negative terminology, for example: bubble wrapped kids, cotton-wool kids and

couch potatoes (Faber Taylor and Kuo, 2006). This is possibly doing children today an injustice, when talking about their lives with such pessimistic views. Taylor & Kuo (cited in Higgins & Freeman, 2013) question whether “children’s need for nature is an established fact, yet to be substantiated folk theory, or simply myth?” (p. 124).

A Sense of Place – spaces and places for play

Space outside is more than just that, because once the space is created and devised it becomes a place. Once a space becomes a ‘place’, there is a sense of belonging for children and adults. Each place has a curriculum that is unique to itself and the focus on the place or the environment becomes the lens through which children learn.

A number of research studies suggest that there is a universal childhood experience of making special places, dens and shelters that bond children with the natural world (Hart, 1979; Moore, 1986; Sobel, 1990; Nabhan and Trimble, 1994). Sobel (1993) explains that as the child moves from the home site, they seek to create new homes. They create a home away from home out of the raw materials of the natural world and their imaginations

The Reggio Emilia recognition of the environment as the third teacher encourages teachers to promote the notion of ‘children’s places’ as opposed to ‘places for children’, and when attention is directed to children creating their own places, teachers are expected to be mindful of children’s inquiry and to be aware of the things that attract children’s interest (Foote et al, 2013).

Historical perspectives – nature play trends

Nature play does not exist in isolation, but is interconnected with other theories, thoughts and ideas about play, the outdoors, nature and the education and care of young children. However way we wish to define play, there is a long tradition of valuing the educational importance of play, nature and the outdoors (Thomas & Harding, 2011). If we are to understand the present context of nature-based play, then

it is also important that we understand the past. Traditions and trends are not fixed and resistant to change, but are dynamic and evolving, therefore it is important to capture the presence of the past, in order to interpret the present and reshape the future (Tovey, 2007).

In looking to the past, we can see that nature and child-led approaches to education in the early years was very much based on the philosophies of Friedrich Froebel (1782-1852). Froebel pioneered play as learning, and outdoor play as central to this approach (Knight, 2009). Froebel created the concept of the 'kindergarten'. The name kindergarten signifying both a garden for children where they can observe and interact with nature, and also a garden of children, where they themselves can grow and develop in freedom and harmony with nature (Tovey, 2007).

Over one hundred years ago, Froebel (1907) urged educators to respect the sanctity of child development through the statement below, which reflects on nature experiences as being educative, but only through children's own activity. This statement of the past, still relates to 'natural pedagogies' of today.

We grant space and time to young plants and animals because we know that, in accordance with the laws that live in them, they will develop properly and grow well. Young animals and plants are given rest, and arbitrary interference with their growth is avoided, because it is known that the opposite practice would disturb their pure unfolding and sound development; but, the young human being is looked upon as a piece of wax or a lump of clay which man can mold into what he pleases.

Summary of literature: Why nature play?

Some strong claims have been made about the importance of children spending time in nature. It is claimed that spending time in nature as a child nurtures significant life experiences and positive attitudes about the natural world. It is also claimed that natural environments promote child development across a variety of domains, for

instance motor fitness, physical competence, self-confidence, greater concentration and creativity, and supports learning and education. In a report for the London Sustainable Development commissioned by Tim Gill (2011), a review of nature studies is reported on, to examine the evidence base for these claims. Taken as a whole, the overall conclusions from the sixty-one empirical studies analysed, confirm that spending time in nature is part of a 'balanced diet' of childhood experiences that promote children's development in a wide range of areas.

Extensive research, childhood experiences recalled by adults and perhaps most importantly, our children; are telling us that we need to have regular connections with nature. Many researchers, educators and parents are starting to embrace this current nature phenomenon, describing natural environments as dynamic play spaces that provide renewed challenges as a child grows, learns and develops. Therefore what does authentic nature-play look like in New Zealand early childhood settings? What are the influences on the play, learning and development of young children when nature play experiences are optimised? With the concern of children's access to nature being rapidly diminished, much of the current research suggests that the answers to these questions are now becoming increasingly urgent to discover.

This literature review has shown that there is an increasing interest in providing nature play as a way of reconnecting children with nature due to a perceived deficit in the amounts of natural spaces and also therefore, the amounts of contact with natural environments and natural elements within their daily lives. The review of literature also points to growing evidence that regular engagement with nature positively influences children's development and learning. The review therefore, has shown that there is and will continue to be discussion about children's nature-based play spaces, provision or access to these spaces, and the benefits derived from playing in these settings.

My research study therefore, responds to the need for more evidence and investigation of the inter-connectedness of play, learning and nature-based environments in a New Zealand educational context. Further theoretical and empirical frameworks, and methods and ways of interpreting data may then emerge to lay the foundations for further evidence and understanding of beneficial relationships between nature, children and learning.

Chapter Three: Methodology

Between stories

In today's world, I have a sense of something being amiss with an overarching picture of new communication technologies virtually connecting children on the one hand, and yet more children being disconnected from direct experiences with nature on the other. It is this idea of something being missing or of being between stories that has impacted on the focus of my research, my research questions and the methodological orientation that I have selected as a researcher. My research story can be viewed through an interpretive and transformative education lens, where greater understanding and new perspectives take place in the space in-between.

In the past few decades, a substantive body of literature, as discussed in chapter two, has indicated that direct nature experiences, not indirect and not virtual reality, are an important part of the developmental process for children. Studies of childhood activity and play increasingly show however, that children have less and less time outdoors in nature. This connection or disconnection, between potential beneficial influences on children's development and time spent in nature, frames my research focus.

The methodology that I have chosen as the researcher is selective, and therefore I will always be involved and implicated in the production of the data and the re-telling of my research story. This research story however, acknowledges that the researcher, participants, settings and activities bring something of themselves to the story. New understandings and subjectivities are therefore co-constructed in the story telling process (Albon & Rosen, 2014).

In a socio-cultural research paradigm, I have viewed early childhood settings as an important site of inquiry because they are embedded deeply in the broader social and cultural phenomena of childhood experiences in everyday life (Buchbinder et al, 2006). Early childhood settings are viewed this way because of their implications for

children's cognitive, physical, social and emotional development, as well as for their influence on parents and early childhood educators. Central to this view is that children too are social actors in the many contexts that constitute their worlds, for example early childhood settings.

In this methodology chapter, I will first discuss the selections that I made in my research, and later my ethical considerations. The implications arising from my research and how my methodological choices may have influenced the kinds of knowledge and understanding generated will be discussed in a later chapter.

Research focus

The aim of my research study has been to investigate the current phenomenon of nature-based play and learning in New Zealand early childhood education settings. Earlier research both internationally and in New Zealand focuses on a range of nature related issues, from generational changes in nature play and recollections by adults of their childhood nature experiences (Chawla, 1998; Kellert, 2002; Wells & Lekies, 2006); on reconnecting children with nature (Louv, 2005; Pyle, 2002) and on potential benefits participation in natural early childhood settings, makes to children's learning (Dowdell et al, 2011; Faber Taylor, Kuo and Sullivan, 2001; Fjortoft, 2000, 2004; Miller et al, 2009; Wells and Evans, 2003).

This increasingly growing research literature has been discussed in the literature review section of chapter two. The reviewed literature has set a foundation for further inquiry into the phenomenon of nature-based play, with the understanding that in comparing and connecting our work to that of others, we can develop well articulated descriptions and make contributions to understanding the relationship of nature play to children's development within their particular worlds.

This research story therefore, adds to earlier studies and perspectives emerging from the review and adds to what Graue & Walsh (1998) describe as a growing mosaic of understanding, while also focusing on the overarching research question: *In what ways does nature-based play enhance children's learning opportunities in New Zealand early childhood settings?*

In order to find answers to this and other contributing questions, as well as to add to earlier studies, I set out to gather observational evidence. My intent was to describe what nature play looked like for children in natural outdoor early childhood settings, in New Zealand. With the aim of accurately describing what authentic nature play looks like, I chose to observe and record children's engagement with nature, with natural materials and with others in natural settings. My research topic on nature play and how the functions of nature play effects the potential learning stimulated in natural settings, is an area that we still know too little about, hence the focus on further research.

Naturalist approach

While many early childhood settings in New Zealand have become part of the societal shift and current phenomenon to provide 'nature-based' play and learning spaces and activities, there is little data documenting and analysing the childhood interactions and play scenarios with, in and about nature. In a naturalist approach in search of real lived, unaltered nature play stories, this research is aimed at helping to define what meaningful experiences and authentic play in nature looks like.

It is about how children might grow in confidence and develop through participation in nature play as a socio-cultural activity, however this view does not restrict development to children only. Both children and adults jointly engage in a process of changing participation in the socio-cultural activities of their communities, with the process of development being transformative both for individuals and for their cultural communities (Woodhead & Faulkner, 2008).

A naturalist approach is also aimed at helping to establish a deeper understanding about what we know, and do not know, about the role of nature in young children's lives.

It appears that we already know enough or intuitively we think we know enough, to act on the perceived nature deficit for children. With the current phenomenon of nature-based play being optimised by some early childhood centres, in the context of on-site nature play spaces or regular excursions to nature settings; this chapter describes and justifies the research paradigm, methodology and methods I have used to explore this nature phenomenon.

Research context

Childhood research has increasingly been undertaken worldwide, and in a variety of different spaces, which provides a critical opportunity to begin to understand the complexities of childhood (Albon & Rosen, 2014). Each of these different contexts frames the complex perspectives of the child's world, including children engaged in nature-based play experiences, in natural outdoors explorative and play spaces; in New Zealand early childhood settings.

Resonating with the work of early years pioneers such as Rousseau, Froebel, Montessori and Dewey as described in the literature review chapter, there has been a recent resurgence of interest throughout the world, in the potential of the natural outdoor environment for supporting children's learning. This interest can be evidenced by the growing number of studies, reports and organisations investigating a nature-based play approach and advocating for children to be reconnected to nature; for example (Fjortoft, 2000, 2004; Kellert, 2005; Kytta, 2004; Louv, 2005; Stephenson, 2002, 2003; Taylor, 2013; Tovey, 2007).

My particular research aim has been to capture the lived nature play experiences of young children in the context of New Zealand early childhood settings, which would provide the qualitative interpretation of these play scenarios. Analysis of this descriptive data would then be viewed as an investigation of the influences on play and

learning that these natural environments afforded young children, in our own backyards and vast landscapes of New Zealand.

Setting the scene – children’s spaces and special places

The scenes of my research story took place in three New Zealand early childhood settings that had either natural play environments within the wider centre setting, or that provided regular nature-based excursions as part of their nature-based programme and philosophy. All three nature-based early childhood settings were purposively selected for their engagement of natural play pedagogies and their willingness to participate in the study over a six-month period of observational case studies.

Four early childhood settings, all privately owned and one public kindergarten were approached regarding tentative permission to observe the nature-based play scenarios in their own nature environments or during the excursions they provided to nature environments. Actual willingness and permission to participate in the study resulted in the three participating centres being privately owned early childhood settings. The one public kindergarten that was approached was not keen to participate, due to their intention to publish their own nature-play observational data and findings.

My research study was carried out in two early childhood settings in different suburbs of Auckland and one north of Auckland. The first setting in Auckland, renamed as ‘On Top of the World’ for anonymity, was regularly visited twice a week. On some occasions these twice-weekly visits also involved visits twice a day, once during the morning and then again after lunch to coincide with two different groups of approximately eight children and two educators, visiting a nearby natural environment.

The second Auckland early childhood setting, renamed as ‘The Children’s Garden’ was visited once a week to coincide with planned visits to a local community garden and public reserve in the local neighbourhood. The group size for these excursions was usually ten children with two educators, with their excursions planned for twice a week.

The third early childhood setting was located in a rural province outside of Auckland and renamed 'Meadow Views' for the purposes of this study. This setting was visited less frequently by the researcher, than the other two settings due to the lengthy travel times involved, but observations occurred over longer periods of time during the days visited. This setting allowed for the whole centre group to leave the centre building and outdoor playground, to spend a longer period of time in the nearby wooded natural environment.

The nearby natural setting for 'Meadow Views' was just a short walk along a farm trail from the grounds of the immediate early childhood setting. This setting was the only one that had provision for infants, toddlers and young children to all engage in the nature-based experiences together. The sustained period of time spent in this nature setting also allowed for the mixed aged group of children to eat a prepared lunch and sometimes cook lunch outdoors. All children and teachers returned to the early childhood building premises after lunch, to provide sleep sessions for some of the children and lunch breaks for the teachers.

All three early childhood providers offered full-day education and care and all advocated for nature-based play pedagogies, sharing some commonalities as well as having stark differences in the nature-play provisions for young children. It was however never my intent to compare the early childhood settings within this research study, but to describe the realities of children's engagement in nature-based play that took place in these settings, looking for common themes, categories and influences on children's development.

Theory of affordance

One way of looking at the relevancy of the outdoor nature play environment is through the theory of affordances. Affordances (Gibson, 1979) are opportunities that arise from the interaction between the physical properties of the environment and the interests, ideas and intent of the individual. Fjortoft and Sageie (2000) and Fjortoft (2001)

pointed out a strong relation between the diversity of landscape and the affordance of children's play through what play possibilities were being afforded by the natural environment's varied and vivid invitations. This theory of affordance and what the natural environment offers or affords children will be a central concept in investigating how natural landscapes correlate with the influences nature play engagement has on children's development.

Qualitative research design

In the introduction chapter I have justified my qualitative research design as being fundamental for exploration of a phenomenon that is important to me. Connected to this design is the idea of observing and looking closely, collecting data with persistent exploration and patience, that will lead to critical thinking and analysis of meaning and understanding, that will then lead to a story worth telling and desired outcome of being useful to others.

As the quote above suggests, this qualitative research story links certain aspects of my design from the outset. Logically, the phenomenon of nature play is linked to something of importance to me as the researcher, to the data to be collected and my chosen data gathering methods. My research design also links to the types of questions initially asked, to the participation and relationships of others in the research; and my own reflectivity and analysis in drawing conclusions.

In reality, more research is needed to show not only the quantity of nature experiences but also their quality and meaningfulness. With this in mind, this research study was designed to investigate in a descriptive qualitative approach, what nature play looks like in New Zealand early childhood settings. The qualitative approach chosen was selected over a quantitative approach to help develop a fuller understanding of the impact nature-based play experiences and natural settings have or do not have, on young children.

Measurement and narrative are both forms of description, and are simply two ways researchers describe the world. The good researcher, according to Graue & Walsh (1998) uses the way that makes most sense in the circumstances. They suggest that it is absurd to argue that one way is essentially preferable to the other, when the world itself has no preference for how it is to be described, however it could be said that much of the world is not readily measurable. It is the researcher therefore, who faces the complexities of what is taking place, strives to first grasp and understand a phenomenon and then shapes self, culture and context into something that could be rendered accurate and meaningful.

Adopting a mixed methods approach to my research paradigm could have balanced the two approaches of quantitative and qualitative research, and aided in viewing the nature phenomenon from as many perspectives as possible. I did not want however, to lose the richness of the child participant's authentic and natural play narratives. I selected specific research methods to aid in acquiring accurate narrative interpretation over precise measurement, in this instance.

My overriding aim to describe children's real lives in the context of early childhood play spaces and to focus on how child participants construct meaning out of these actions and interactions; drew me to select a qualitative and interpretive ethnographic research approach via multiple case studies, engaging in nature play with children.

Children as social actors

Research with children has grown in volume across many areas of childhood and children's education, but in doing so, has also generated discussion about the particular methodological and ethical issues that this raises. My focus in this research is on children as central players of their own life experiences, and the research being with, rather than, on the children. This focus draws on the position that children are social actors, knowers and active participants in their social worlds –including in research conducted in their early childhood settings; rather than subjects or objects of enquiry under the researcher's gaze (Christensen & James, 2008; Harcourt, Perry and Waller, 2011).

Within any research endeavor with children, they may assume a range of roles from participant, beneficiary, subject, co-researcher or adviser. In searching for authenticity of children's nature play scenarios and playing naturally, the most authentic role given to children in this research study is that of active participant, with the researcher as participant-observer. By researching what children are doing and participating in, rather than what they are being, recognises that this study is about being with children, to learn from children themselves about their lives and what they do and say, and their relations with others.

Attention should also be drawn to children as 'becomings', at the same time as they are 'beings', as is suggested by Woodhead & Faulkner (in Christensen & James, 2008). Children are already being someone, but looking beyond what children are being in the present, and retelling their stories could have the potential to reshape our world and socially constructed worldviews on childhood, nature and more.

Biologist, E.O. Wilson stated:

A culture creates its present and therefore its future through the stories its people tell; the stories they believe, and the stories that underlie their actions. The more consistent a culture's core stories are with biological and physical reality, the more likely its people are to live in a way compatible with ecological rules and thereby persist (cited in Crockett, 2014).

The quote above helps to describe my connections to story telling throughout this study and research story, and the importance I place on telling stories to capture something taking place in the present. Children being children, children being researchers, children being social actors and competent contributors of their perspectives on their lives in the present, but also leaning toward the future.

Ethnographic engagement

The ethnographic methodology that I have selected shifts the focus from observation to engagement, and then ventures even further than the apparent reality, towards new and changing perspectives on children as active and equal participants in their world. Collisions of being and becoming are taking place and in the context of nature-based play, are shaping our views and understandings of self, children and culture in this particular focus area.

With a view to the future and communicating children's engagement in nature play, new or changing perspectives on nature-based early childhood settings where children live, play and learn, may emerge. Perspectives such as nature-based play being beneficial for children's development; nature as fun learning spaces based on sensory exploration of the world; nature as nurturing a growing ethic of care for the natural world and others; and children becoming and wanting to become future stewards of our Earth due to their nature experiences, are all potential focus areas which may emerge further and be worthy of future investigation.

Designing a research methodology that includes children as active research participants, but also as collaborators recognises the inherent competence and capabilities that children can offer. As suggested by Harcourt and Conroy (in Harcourt et al, 2011) children can elaborate upon their experiences, through intentional symbolic representation of those experiences, which supports the adult researcher to generate ideas and construct theories with the child.

Although I do view young children as capable and competent, and as researchers and explorers of the world through their eyes, it was whilst the children were actively engaged in the nature settings and nature play activities, and predominantly produced play scenarios that evolved from their own interests and understandings of the world, that sources of authentic nature play data were provided. It was also the dialogue between research co-participants, around the activities and play scenarios at the time they were happening that provided the even richer source of interpretation and meaning that I as researcher could not have predicted.

Rather than child participants collaborating with me after the play scenarios, in ‘voicing’ their play preferences, concerns, play memories and explaining their interpretation of their play scenarios, this research story let ‘children’s voices’ and ‘hands-on actions’ navigate and set the descriptive observation data. In other words, actual engagement and dialogue in nature play, at the point of data collection emerged as the children’s participatory technique for learning more about the reality of the setting; relationships, activities and play scenarios.

As already mentioned in this chapter, a naturalist approach to social research explores social phenomena, as they exist in the world, unaltered (Buchbinder et al, 2006). In this paradigm therefore, ethnography as the study of children and adults as social actors; as they go about their everyday lives, is viewed as well suited to the study of a nature phenomenon in early childhood settings.

Research relationships

Ethnographic work involves considerations as to the position the researcher will assume within the structure of the research setting. I particularly wanted to assume the position of an adult that engages with children in the presence of playfulness, but where children had the freedom to play without or with as little adult supervision or intervention from me, as possible. This position is similar to that of ‘least-educator’ or ‘least-adult’, as described by Albon & Rosen (2014). The ‘least-educator’ role encouraging a researcher to consider ways to position themselves outside of the institutionalised responsibilities and authority embedded in an educator role.

Another way of distinguishing my relationship with others in these multiple case studies was as that of ‘outsider’ researcher, which illuminates the differences in the role of educator and researcher in the early childhood settings I visited. My challenge as an ‘outsider’ in this research study, was to get close enough to the children’s individual and peer world in the natural settings, but to be able to observe it while minimally affecting the play scenarios. My goal was to establish a relationship with the children

that meant they would not behave differently in my presence, but with the understanding that they would invariably sometimes include me in their play or interaction, making me a co-player with children.

As researcher, I was actually able to spend long periods engaged in play with single or groups of children, without having to cast an eye on what was happening in the rest of the outdoors play space. This engagement with children quickly changed my position from ‘outsider’ to ‘almost-insider’, with at times a more luxury insight than would generally be experienced by the other adult educators in each setting.

In some case studies, educators may conduct research within their own early childhood settings and be considered ‘insider’ researchers. Researchers that are still accountable to centre owners, parents and children, yet simultaneously observing, undertaking some activity and supervising which can foreclose observation across different spaces. As an, ‘almost-insider’ researcher though, I had no such collisions of roles and responsibilities and imposing rules and routines on children. I was able to move fluidly around the outdoor spaces, unimpeded by regulatory and staffing requirements, and this afforded greater opportunities for being ‘in the moment’ with children, as also experienced and reflected on by Albon & Rosen (2014), from their research fieldnotes.

It is likely that due to my adult presence in the children’s early childhood setting and in their world of play, that they initially viewed me as similarly as the other adults, in fulfilling some form of regulatory and authority role. The other adults present were in the roles of educators and supervisors, and were therefore in charge of routines, regulating the places visited, allocating time allowed for exploration, responsible for health and safety, and through their own teaching practices and philosophies, the amount of adult intervention given at any one time.

In building up a relationship with the child participants prior to recording observations, I was keen to be perceived by them as an interested visitor and co-player and not so much as an outsider. Due to my experience as an early childhood educator, and more recently as an early childhood reliever I was familiar with building relationships with

new groups of children. I knew that as both child and adult began to know one another more, that gradually more is shared about oneself with the other; and that then a greater degree of intimacy, trust and being looked on as an 'insider' is developed.

As children became comfortable with my presence and a reciprocal relationship of 'being' with them was built upon, they increasingly invited me to join in their play within the nature-based settings. Children warmly greeted me on arrival and included me as co-player in their spontaneous; child-initiated and playful scenarios, resulting in rich inclusive narratives being recorded.

The play sites that the children included me in as co-players, also became insightful research sites where we participated as co-researchers of the shared environment, with a shared interest in things we stumbled across or revisited because of a curiosity that was sparked in one or more of us. The nature-based settings afforded both playfulness and exploration that at times resulted in shared questions about the natural world and a sharing of knowledge and previous experiences in the form of story-telling and creative play.

In this research story the child participants were viewed, either on their own or with their peers and as already acknowledged, as competent and capable social actors. They were viewed as equal participators in researching natural settings through expressing their feelings, curiosity, knowledge and understandings of the natural world in their nature-based play scenarios. It must be acknowledged however, that at times the child participants were also viewed as being at times dependent and inexperienced. Often, the children would require and often seek guidance, support and information from a more experienced social actor – that of myself as participant-observer, from peers or from other adults.

When a researcher observes and co-participates with others, this brings different values and modes of interaction into collision. Similarly, the presence of different children in a setting can fundamentally alter the relationships between researcher and children and children with each other (Albon & Rosen, 2014).

When first approaching potential research settings, my background, my interest in nature play, my qualifications and experience as an early childhood educator and previous centre owner were stressed more in my story about myself, than that of being a researcher. In all of the three research settings I felt that the fact that I was an experienced educator with a shared passion for engaging in nature-based play in natural settings; contributed to being well accepted as an outsider coming in to their setting. More than just being accepted in the settings though, it was after only a couple of visits that I felt that my presence was actually welcomed. I would always receive positive greetings and responses with the children and adults, building up a trusting, respectful and professional relationship in each setting.

At each setting there were also children who spontaneously sought out my interaction with them, each visit. Although I did not wish to be viewed as an outsider, I was surprised at how comfortably my relationships with others in each setting changed.

Child's voice

Childhood studies theory (Smith, in Harcourt et al, 2011) argues that children are participating subjects rather than the mute objects of research or incompetent and immature beings. This theoretical perspective is productive in expressing new knowledge and perspective of children's experience that extends our understanding of childhood. Smith (2011) quotes Woodhead (2005, p 92), in saying that "it is important to acknowledge the different standpoints of adult researcher and child participant, but that good conversations are achievable within participatory dialogue".

Smith (2011) believes it is possible to do ethical participatory research without it always having to include children's voices. The research story shared here includes children's voices and interactions as heard by the participant-observer, but it was decided to not interview children to gain their voicing or verbal perspectives on nature-based play, and to just describe what was seen and heard.

Initially I wished to gather children's perspectives through sharing the written transcripts reconstructed from my field notes, in the form of learning stories read back to them. This implementation may have helped in gaining shared meaning, more understanding and to check reliability of my recorded observations. However, time restraints, as sole researcher and my observations covering so many individual children within different patterns of groups of children, within each visit; did not allow for this to be acted upon, in this particular research study.

Ethical considerations

Ethical consideration has also overridden my methodological consideration, particularly due to my research being with young children. An ethical stance has permeated all the work I considered doing, and eventually the work I did do with children due to their central place and space within the study.

Integral to developing a relationship with the child and adult participants whose engagement in nature play was to be observed during the study, was initially introducing myself to the centre owners, teachers and parents of each centre through participant information sheets. The centre owners, teachers and children's parents were then able to provide consent or dissent of being informed and involved in the study, through the ethical research structures of written explanatory statements.

Due to the higher number of educators employed at 'The Children's Garden' and the intention of having all educators in each setting fully informed of the study design, I attended an evening staff meeting to address all of the research study information and any concerns or questions. I introduced myself, gave information as to the research aims and methods, and explained the participants' rights to be involved or not.

I sought consent from the child participants' parents by providing participant information sheets for each child attending each centre, together with individual consent forms for each child. Centre Owners and supervisors agreed to take on the role of distributing the participation information sheets and consent forms to each

family in the centre. I also introduced myself and displayed a photo of myself on a poster displayed in each centre. Signed consent forms from the three centre owners, the adult participants (educators) from each setting, and the parents giving consent for their child or children to be observed participants, were collected and returned to me.

Once consent from children's parents was given for their children to be participants in the study, children were afforded the right to be spoken to as co-participants and co-researchers who could deny their involvement at anytime they were being observed, through their non-verbal or verbal dissent during the engagement of their nature play.

Data analysis

The qualitative approach used in this study was chosen to observe children as they played in natural outdoor spaces in early childhood settings. Children were observed talking, listening and doing in the course of their daily play scenarios. As the participant-observer researcher I recorded these observations in the form of field notes, that were then expanded on and reconstructed in more detailed writing as soon as possible after the shared experience. I wrote narratives about what I had seen the children doing, what the children said, and what they did and said in relation to what other children or adults said and did, in this specific setting.

Field notes became detailed descriptive and interpretive transcripts that as sole researcher, I tried to write as rich description of the actions, voices, feelings and meanings of the individuals interacting and engaged in play and exploration. These transcripts were then scanned and rescanned searching for common themes and understandings. Repeated scanning through and analysing the transcripts and repeated revisions of tentative themes or patterns allowed a final set of themes to emerge. The writing up stage of this research story is a continuation of this interpretative act.

Shedding light through creative approaches: finding my way

For me, just as Pyle (2002) writes about children not knowing what they like until they see it, because children may not have seen it before (or heard it, or smelt it, or touched it) similarly relates to Graue & Walsh (1998); in writing about researchers and suggesting that often we do not know what we know until we write. We are then forced into the situation of saying something about what was nothing before. In other words, it is not until all the field notes are transcribed and then reproduced as written observational data, that we start to navigate and analyse our data, construct ideas and new understandings from our research, and start to draw conclusions.

However, it was during the data gathering and subsequent transcript process, that there came a point as the researcher, that I felt ample descriptions of nature-based play had been captured due to the repetition of observed play scenes, affordances and creative thinking and play interactions.

Concluding thoughts

Many researchers (for example, Kellert, 2005; Spodek & Saracho, 2003) suggest we certainly need more research related to the play of young children in educational settings. We also need to further consider the consequences of different kinds of play on young children's learning.

During this research study, theory and observation have worked hand in hand, with theoretical perspectives enlarging my vision of what to observe, for example through a sociocultural perspective, and the theory of affordances. Then observations have subsequently sent me in search of further theories to understand what I have seen and heard and felt about the influences of nature play on young children's learning.

The types of considerations early childhood educators make regarding children's play, draws me to think of Stinson's (2005) work, which asks dance education undergraduate students: Why are you doing this? What drew you to dance and to dance education as a career? Almost all of the dance education students answered, it

was because of how they feel when they dance, and they want to teach so that others can share the joy and satisfaction that they find in dance. The same could be said for why I wanted to research nature play – because of how nature play holds special memories for me as a child, and plays an important part in my life. This special fondness for the natural world is also what drew me to specific questions regarding perspectives on nature play today.

Stinson (2005) critically analysed her perceptions further by looking at how in different times, dance education has been marketed as a way for students to become healthier, better adjusted, better problem solvers, better critical thinkers, better team players, more creative, and more appreciative of diversity. Dance educators are constantly seeking research to “prove” that dance education does indeed fulfill the claims they make in advocacy. But as Stinson states, “what about the aspects of dance that give people joy, meaning and satisfaction”.

In my overarching thesis question, I similarly sought proof of the potential benefits of nature play on young children’s learning and development, by asking: In what ways does nature-based play enhance children’s learning opportunities in New Zealand early childhood settings? If nature experiences are intrinsically interesting and if nature play gives rewards to children (and adults) just because of the joy, sense of wonder and pleasure we receive from our interactions with nature – then why do we have to advocate for how nature play enhances children’s learning and development.

This brings me back to the idea of bringing context full circle, or at least in a cycle that keeps repeating. While earlier research has set a foundation for inquiry, this research study has set out to gather descriptive and interpretive observational evidence of nature play, conveyed in the form of words and images through my research stories and poems. These stories and poems can shed some light in early childhood education and care settings in New Zealand. They may weave a path through the trees and nature environments, and then may become more illuminating

than merely ‘someone else’s story’ or proof of value and contribution. As researcher, I view the stories and poems as worth telling and sharing, chosen for their potential to provide insight and to be talked about, for further and deeper understanding. This overarching research story may in fact then open up some new and regenerative ideas and perspectives, and therefore be never ending...

Poetic approach

A research story therefore could lend narratives and expressions that others could borrow, and should beg for further research. Stories help us to create and interpret, to reveal the world and also help in revising or re-creating the world. Telling the story of one’s research means showing it as it unfolds. It means mixing ideas and theories, descriptions, interpretations and justifications. It also means mixing several stories, my story, the stories of other researchers and authors, the nature play narratives in the form of poems and stories in this study, and retelling a research story about these stories.

Communication theorist, Walter Fisher developed the ‘Narrative Paradigm’ as a theory of communication that has at its basis the human instinct for storytelling. He argued that people are, in essence, storytellers who formulate a world view made up of a set of stories, chosen to create and recreate, both our individual identities and our shared cultures (Fisher, 1985; 1987 cited in Judge, 2012).

Generally, narratives are understood as stories, but they assume many forms. They are heard, seen and read; they are told, performed, painted, sculpted and written. Narratives transform experience that is shared, into experience itself that is storied.

In writing up my research, I wanted to do more than recounting the research story in a typical way interspersed with transcript excerpts, with an outcome that I perceived could be rather flat and uninteresting. In a more artful, melodic and interesting portrayal of my observational data, I have chosen to incorporate poetry to help give

shape and breadth to the language, actions, thoughts and feelings recorded during my observations. I have also looked at this chosen method of transcript interpretation, as a foray into new landscapes, expressing the essence of what has been observed in an artful way. This alternative representational form may provide new ways of seeing, understanding and connecting. It may also evoke a different response from the readers and a different kind of interpretation and understanding.

Chapter 4: Rhythms of the Day in Nature-based Play

The special places that stood out in memory, where people formed a first bond with the natural world, were always a part of the regular rhythm of life

(Chawla, 1999, p.19)

My research story explores the current phenomenon of providing nature-based play and learning experiences in early childhood education and care settings, in New Zealand. In some early childhood settings, this means the provision of an environment with the potential to provide regular nature-based play experiences and practices as part of the regular rhythms of the day. These environments may be either within the early childhood setting's boundaries or a little beyond the boundary fences in a park, reserve or community garden, in the local area.

If regular connections with nature create a bond with the natural world, as Louise Chawla suggests in the quote above; then what does regular nature play within or just beyond early childhood settings look like? How does nature play benefit children's learning and development and are these settings indeed special and valuable places?

In previous chapters I have introduced my research focus relating to why experiences of the natural world are considered to be so important and examined existing research on nature-based play for young children. This though is where my research story really begins...and also where the reader too, becomes actively engaged into a relationship with nature and the research study participants. The inquiries made by researcher and children, and the complex connections between all the social agents in my study are infused in the rich stories of everyday play dates with nature that I retell.

Diverse settings – similar nature-based provision

In this chapter, I will present the three independent research settings in three separate sections. Each section will be headed with the pseudonym names that I have given each case study site: *On Top of the World* (Setting 1), *The Children's Garden* (Setting 2) and *Meadow Views* (Setting 3). In choosing to describe the nature-based settings separately, I aim to present a vivid picture of each setting as I was immersed in nature with each diverse group of child participants, adult participants and myself as participant-observer. Through fieldwork, in the sense of watching what was going on and taking part alongside or in nature-based experiences with the participants, I was able to analyse a field of social relations consisting of all the individuals in a particular social group and setting, or settings. The three settings may not have been actual 'fields', as the word fieldwork once referred to (Moeran, 2005), but they were close to this, in that they were all in natural environments.

In the next chapter, I will make fieldwork connections across time and place, discussing how even though the nature-based settings were different on the scale of how many natural elements were on offer and the observations were at different times; the provision for nature-based experiences and hands-on discoveries with natural elements were similar, during the regular nature-based rhythms of the day.

There is little research-based literature being produced as a result of describing, interpreting and making meaning from nature experiences that form part of regular daily practices in a New Zealand early childhood context. There may therefore, be a broad understanding by early childhood educators as to what constitutes nature play; what nature play settings should look like; how nature activities should be implemented as in structured or unstructured play; and how nature play may potentially be beneficial to children's learning and development. This is the area where I feel my research story may be most useful, that is, as an ethnographic multiple case study, where I have been immersed in three separate nature-based

settings with young children and their educators; observing and interpreting the experience and nature phenomenon as it unfurls.

In Chapter five, I will frame my collective findings from all three-research settings together, analysing regularly occurring themes and experiences in more detail, under separate thematic sub-sections. These themes will link to my overarching research question to examine more fully the potential benefits of nature-based settings and natural play elements. I will seek to find out whether these elements and factors of nature-based play are shown to be influential. Also, whether or not they work independently or together, in creating a positive environment for simultaneous play and learning development in a New Zealand early childhood setting.

I have purposively selected the three different early childhood settings as research sites in this nature play study. As already stated, the three natural settings visited in this study can be placed on different points along a continuum of nature play provision, and one may be considered more natural or more beneficial than another for the scope of nature experiences on offer. It is however, the unstructured and regular time spent in nature that is considered by many nature play advocates (Chawla, 2007; Cross, 2012; Keeler, 2008; Kytä, 2006; Louv, 2008; Nabhan & Trimble, 1994; Pyle, 2002; Sobel, 2008; Tovey, 2007), to be the key to reconnecting children with nature. The benefits that are potentially offered from this reconnection with nature and nature play experiences are what I am exploring further in this Chapter and the next.

Three early childhood centres allowed me access to three diverse nature-based research settings. All three centres share similar philosophies for engaging children in nature, and for children to learn with, in and about nature. They also share similar nature-based learning pedagogies, with educators committed to regular access and encounters with nature. Within my research story, these centres can be viewed as a

small representation of those providing a broad range of nature-based environments within New Zealand early childhood settings currently. My research focus has not been to compare the settings as they all offer diverse and abundant natural elements, but to give more insight and depth of understanding to the nature play phenomenon within these settings.

It is through describing how children and myself as researcher view the natural world in each setting, and how the children engage and make use of these natural environments; independently, together, alongside and with me, that this research story contributes to the accumulating qualitative research on playing and learning in nature.

The value of remembering

As Chawla (2007) and others (Kahn & Kellert, 2002; Louv, 2008; Nabhan & Trimble, 1994; Orr, 2004; Pyle, 2002; Sobel, 2008) have suggested, children's special places in nature that stand out in our adult memories, evolved from regular contact and intimate familiarity with a place in the natural world. In other words, this can be described as day-after-day, week-after-week experiences in children's lives. The educators and authors listed above, argue that these experiences are crucial to children's cognitive, social, emotional and physical development.

Garrick (2009) and Taylor (2013) warn of idealising and romanticising the childhood landscapes of the past. However, it is the personal sense of place, intimacy and familiarity with a natural environment such as the nature reserves and parks in the local community, or backyard and bordering natural habitats as in my research story; that are where childhood experiences in nature have been found to be more influential, when looking through the lens of adult memories (Chawla, 2007; Kahn & Kellert, 2002; Louv, 2008; Nabhan & Trimble, 1994; Orr, 2004; Pyle, 2002; Sobel, 2008).

In contrast, I have looked at nature-based settings as the nature play participants engage in nature-based experiences, in the here and now. This is consistent with

qualitative studies by other researchers here in New Zealand and internationally including Dowdell et al, 2011; Faber Taylor & Kuo, 2006; Fjortoft, 2000, 2004; Grahn & al, 1997; Horne, 2010; Miller et al, 2009; Taylor, 2013; Tovey, 2007; and Wells, 2000. Throughout my research, I have been continually mindful however, of the retrospective lens of adult memories; in that my own adult memories and that of the many researchers, authors and nature play advocates cited in this research story, place their own childhood nature experiences in a valuable context of adult remembrance and advocacy.

E.O. Wilson's (1984) 'biophilia hypothesis' drawing from evolutionary theory, posits that humans are biologically hard-wired to seek an affinity with nature and that therefore childhood is the crucial time for children to form attachments and affinities with nature; while also learning directly from nature. Sentimental recollections of poignant childhood moments in natural environments have been narrated by the authors and researchers mentioned above, along with references to Wilson's biophilia hypothesis, to validate and promote children's immersion in nature.

Pro-nature education movements led by whom Taylor (2013) describes as "Transcendentalist-inspired pro-nature educators" and advocates; for example Louise Chawla, Ken Finch, Richard Louv, David Sobel, and Robert Pyle, heavily rely upon anecdotal evidence, and evolutionary theory as in the biophilia hypothesis. They have also "appropriated child psychology and learning development theory to detail and justify the emotional, cognitive and moral development aspects and stages of children's innate and special relationships with nature" (Taylor, 2013, p. 48).

In this research story therefore, the context of childhood memories adds layers to my current observations and explanations of children's nature play. Childhood play experiences, as suggested by Sobel (1993), may not be fully understood simply by the observation of children. There may be a dimension to our early childhood experiences that we can only become fully conscious of in later life, when we

compare them with other forms of experience and gain a sense of the significance of the experience at the time. Furthermore, as a young child we may not be able to fully reflect on and express how our experiences in present time as a child, affect our views of the world; when that view of the world is so new and full of potentially new experiences and learning. As a child, we also may not be able to fully understand any long-term effect of these childhood experiences, as they may not influence our thinking until a later time.

Te Whāriki, the New Zealand Early Childhood Curriculum statement (Ministry of Education, 1996), provides a foundation and challenge for educators to view young children as capable and competent and furthermore, ‘becoming’ more confident and competent beings through “...the relationships and the environments that they experience” (p. 7). Woodhead & Faulkner (2008) suggest further, that children’s status in research be one of children as ‘becomings’ at the same time as they are ‘beings’, something which children themselves are very aware of.

It is the idea of natural environments as a sub-section of these mentioned environments, and having “...a direct impact on children’s learning and development” (p. 7), that this research story will now start to expand on through nature-play observational narratives and generated research poems. A description of the nature-based environments provided by three early childhood settings, and the nature experiences in these settings, will frame my research story. Within this framework, I will explore each setting as potentially ‘being’ and ‘becoming’ a place of new learning and of children within these environments potentially ‘being’ and ‘becoming’ more creative and more enriched learners and thinkers; as well as ‘becoming’ potential future stewards and caregivers of the natural world.

To summarise, the three natural settings that I visited in this study represent the type of places other researchers and authors describe as being more influential in forming

early bonds with the natural world; therefore they are representative of natural environments and special places that transcend time, in the past and present. One setting provides regular visits to a local natural park, one regularly visits a community garden and reserve or their own wild natural backyard habitat; and the other setting regularly spends time in a naturally formed woodland space within the wider centre grounds. In the sections that follow, I will describe and discuss each setting separately through my frame-based fieldwork.

Section One: On Top of the World (Setting 1)

During my regular bi-weekly and sometimes twice a day visits to a nature-based environment that I have renamed *On Top of the World*, these are the types of nature-based rhythms of the day that I regularly observed:

With the children aged between 2 and 5 years old, we leave the centre at around 9.30 a.m. or at around 1.30 p.m., depending on whether it is the morning group of up to 8 children, or another group of up to 8 children in the afternoon. Prior to leaving, a group of children are invited to join the two teachers and myself, on the nature excursion. If children do not wish to be part of the invited excursion group on that day, they can choose to stay at the centre and another child is invited to join the group instead. The children are checked to ensure that they have appropriate clothing, footwear and sun protection for the weather conditions. For example, sunhats, sunscreen, rain jackets, warm clothing if needed and gumboots.

As a group we then leave the centre for around two hours. Children are buddied up and hold hands with a peer or an adult, walking in pairs up the road about 400 metres to the gates of the natural park setting. There is a teacher at the front of the group leading the way, and a teacher at the rear of the group. The group crosses two side streets and the pedestrian crossing of a main road to reach the park entrance. Once inside the park gates the children release their buddy's hand and walk or run to a

designated meeting place a further 100 metres into the park. This meeting place although not designed as such, provides a tiered seating arrangement for the children to come together as a group and discuss the desired location or locations to head to for the session; as well as the direction of travel to these chosen destinations.

Freedom

My first recurring observation from the regular visits in this setting is the realisation that the children relish the sense of freedom on arrival at the natural park destination, outwardly and inwardly displaying what it means to no longer be constrained by obvious boundaries. There are still boundaries of roads, fencing and tree borders within the park, but they are less of an obvious barrier to free choice, independent exploration and self-expression.

The following research poem that I have titled *Out of Bounds* came about as a reconstruction of my thoughts from this observed sense of ‘freedom’ for children in natural settings. It also represents a metaphor for my own need to break down conventional boundaries and with my own free will as a critical researcher; use poetry as an analytical and reflective tool in my research story.

Out of Bounds

The entrance gates are open
Their boundaries we have met
No more holding hands
Or walking two by two
No more walking slowly
Or feeling obliged to keep up with you
No more adult front and back
And no more safety net

Like a baby being un-swaddled
My arms and legs are free
To move and stretch, and run about
Or just take in all I see
The open spaces lie ahead
They give me room to breathe
To roam, to think, to contemplate
What does it mean to be free?

There are of course restrictions
But they are very few
An adult walks beside me
Aware of all I do
The rules are very simple
I can run, explore and play
As long as the adult sees me
And I see you, if I may

I might just lie and close my eyes
Or watch the clouds go by
Feel the wind through the trees
Or hum a lullaby
A place to run free
A place to unwind
No more bounds - just liberty

The right path beckons
So with an open heart
And an open mind
An open soul and my own free will

Attentive to my surroundings
Where do I draw the line?
With once-firm boundaries
Now redefined

Directly engaged
In a new frontier
Daily, weekly, frequently
Making my own choices
Stepping outside the limits
Physically and mentally
No longer constrained

Creating my own boundaries
What is it that I see?
A whole new world is opening up to me!

This research poem is about the ‘freedom’ that I observed being expressed by children as they were given freedom to make their own choices in outdoor natural settings, without the boundary fences and containment of a typical early childhood centre setting. As already mentioned, even in the natural settings there were boundaries, but children had the freedom to determine their own activity and choose their own resources, or to be with others, be on their own; and be with or without adults, as has also been reflected on by Tovey (2007).

The children’s sense of ‘freedom’ was portrayed in one of two ways, with some children running freely in wide, open spaces, and often sharing in this delight with others or with the adults present. Then there were others slowing right down to breathe in the space as a place of quietness and stillness. Tovey (2007, p. 78)

describes how “young children often choose outdoors as a place for solitude, for quiet contemplation or intense fascination, and it is not unusual to see children outdoors silent and still as they watch a snail or gaze at clouds moving in the sky”.

The children in this setting that chose quiet contemplation, would often sit alone, lie on the ground and even raise their hands up in the air. They would tune in to the sounds of cicadas, crickets and tuis, feel the wind through their hands and watch the clouds go by. In many cases these children would move to another quiet spot if another child or adult invaded their private space.

I observed that Lily lay down on soft patches of long grass on several occasions today. She would lie down by herself on her back and covered her eyes from the sun a couple of times, with her sun hat. Lily just lay flat, and did not converse with anyone else. She would return to the group when she was called to catch up, or if she observed that the group was moving onwards.

It appeared that on the several occasions that Lily repeated laying flat on her back on the grass, that she was wanting to be alone in her own space. Lily was particular about where she would lie – under a tree, on a very soft patch of grass, between two rocks on a slope and in a very open space away from anything and everyone else. When Amber tried to lie down with Lily under the tree near the rocks, Lily quickly got up and moved away to another space.

(Observation from On Top of the World, 20-11-13)

I would often observe Lily arriving at the entrance gates to the natural park grounds and see her walk extremely slowly from gates to meeting place. This was observed as being in stark contrast to the majority of children running off once their hands were no longer held and they were no longer constrained. Both scenarios however, displayed a sense of freedom and release, but in different ways. Furthermore, it was always the child’s choice on how to act or react to being free of boundaries.

Bachelard (1994, cited in Tovey, 2007) suggests that when we are no longer restricted by physical spatial boundaries and as we become motionless, we are able to daydream and wander freely into a world that is only limited by our imagination.

Helen Tovey (2007) also suggests that natural environments and open spaces give children the “freedom to pursue ideas, explore, innovate, imagine and create” (p. 13). She concurs that these modes of play experiences can be centrally important in all areas of children’s development and learning. I add to this, that time in natural environments and open spaces alongside children freely expressing their own desires, needs and perspectives of the world, has also given myself as researcher; a shared sense of freedom and free will to develop my critical and creative perspectives on this nature play phenomenon journey. This may well become evident through my creative writing of ideas, reconstruction and sharing of my research story.

Further narratives follow, to illustrate children expressing their sense of freedom in different ways:

I noticed Joel and Daniel would run off together (just a little way ahead) and then Joel would continually roll on the ground, get up, run and roll on the ground some more – flipping his legs up in the air while on the ground, or do a roly-poly type action – all with huge smiles on their faces, lots of laughter and for Joel a lot of time spent lying on the ground. (Observation from On Top of the World, 12-11-13)

Research on outdoor play within early years educational settings often highlights the significance of freedom and space that outdoor environments – and particularly natural green environments – tend to afford. For example, it is maintained that outdoors children are able to move more freely, play on a larger scale and experience at first hand the world around them (Bilton, 2002; Rivkin, 1995).

Bella and Georgia choose to climb a tree – they are able to get up the trunk themselves and play in the ‘v’ of the large branches.

I stay nearby, as both girls are observed surveying the possible points of descent and seem unsure about being able to get back down on their own.

I offer to give assistance in climbing down if they need it and Gemma announces – “We want to be alone!”

I move away from the tree so that the girls have the sense of being alone, that they request. I hear them having a conversation along the lines of “...friends always help each other”, and then I notice that both girls have helped each other climb and jump out of the tree at the same point they climbed up. (Observation from On Top of the World, 18-2-14 PM)

For these girls, ‘freedom’ meant being out of the gaze of adults, initiating their own play activities and solving their own problems without adult assistance. As emphasised in Te Whāriki (Ministry of Education, 1996) the New Zealand early childhood curriculum guidelines, children learn through guided participation and observation of others, as well as through individual exploration and reflection. As reflected by the narratives selected, and in the many that are not shared in my research story, the nature-based setting as curriculum emphasises how the natural environment provides many aspects of a free choice and open-ended context of learning. Clearly observed in the natural settings was the learning through exploration, learning by doing, learning by interacting with others, learning by setting up theories or ideas about how things work and trying them out, and learning through the purposeful use of resources.

Detailed under adult responsibilities in management, organisation, and practice, in Te Whāriki (Ministry of Education, 1996) is the following statement expanding on aspects of what an open-ended explorative learning context should offer:

The environment should offer a wide variety of possibilities for exploring, planning, reasoning, and learning, with space arranged to encourage active exploration, providing both new challenges and familiar settings so that children develop confidence. Both indoor and outdoor environments, including the neighbourhood, should be used as learning resources (Ministry of Education, 1996, p. 83).

The natural environment observed in setting one provided this type of neighbourhood environment, that gave children a perception of themselves as “explorers”, affording them challenges and the familiarity that grows competence, confidence and benefits learning. Nature play therefore, offers freedom of expression and creativity, in spaces that allow children to work alone or together, using close at hand raw materials to create new things and to shape new meanings.

Familiarity - the world that is opening up

As the group ventures further into the nature-based environment, I am made aware of several specific landmarks within the natural park setting, as well as special places of interest that have been given place names by the children and teachers due to their familiarity and a sense of belonging and ownership. These places, which are all uniquely special to the children and group, carry stories and memories about how their place names came about and their special features. They are all possible points of destination depending sometimes on the amount of time available on any given day to reach them, before the group has to return to the centre. Once an initial destination or journey has been planned and agreed on, the group disperses from the meeting place, with everyone headed in the same direction.

On one particular November day, the children enter the park and once inside the park gates, they run and meet at the usual meeting place to discuss the destination or pathways to take for the day. It is decided this day to head to the landmark named by

the children 'The Top of the World'. They wish to show me this special place that they have named, as I have not visited this part of the landscape with them before:

As Anthony is approaching the hill, I ask, "Where's Anthony going? He looks like he's leading the way".

Mary replies "The Top of the World, and you can see everything".

When we all catch up with Anthony on 'Top of the World' we all sit down and play I Spy initiated by Sally (Teacher) to see what we can see from the top of the hill. Anthony begins surfing down the hill with his arms stretched out wide as he goes sideways slowly down the hill.

I hear Sally saying that Kelly (Teacher) has taught the children 'surfing' to get back down the steep hillside safely. Mark joins Anthony at the bottom of the hill and they continue to run up and down the slopes.

When we all leave 'The Top of the World' together, we head back across the paddock, over the fence, across the road and we enter the 'Dinosaur forest'. Sally tells me the story of when they once found what looked like a large dinosaur footprint in the forest and the amazement at then finding loose sticks made into a large nest. A dinosaur nest they thought, and still the story continues with visits to the forest looking for dinosaurs. Today, we find mounds of mulch that the children say are dinosaurs sleeping. They say that we have to be quiet in the forest and to be careful not to stand on the sleeping dinosaurs. (Observation from On Top of the World, 12-11-13)

As the above narrative shows, recurring visits to the same places fostered intimate familiarity and feelings of belonging and ownership. The process of labeling a place established a relationship with a particular landmark, landscape or special place in the environment. It is stated in New Zealand's early childhood curriculum Te Whāriki

(Ministry of Education, 1996), as a learning outcome of exploration; that children develop “a relationship with the natural environment and a knowledge of their own place in the environment” (p. 90).

The stories and representations demonstrate a sense of ownership that is co-constructed with the educators and reveal a deep relationship and understanding of the favourite natural spaces named in this narrative as ‘The Top of the World’ and the ‘Dinosaur Forest’. Furthermore, the frequency and familiarity already discussed above, allows the adults in this setting to afford the children a greater deal of freedom, with one factor adding to another in producing noticeable benefits to children’s play and learning.

Campbell & Thompson (2013) suggest that to give a name is to give respect and recognition, which is the beginning of love. After repeated experiences or visits to a special place, love and respect are authentically developed into a rich sense of place. They describe the same processes as I observed with the children in the narrative above, of labeling special natural places as they regularly take groups of young children into an urban national park in San Francisco. Through their research of children, they have learned that the practice of inquiry and regular experiences in nature settings, nurture a relationship that develops over time and deepens into a sense of ownership (Campbell & Thompson, 2013). Through their descriptions of the nature experiences with groups of young children and adults, just like in the setting *On Top of the World*, we can see that although the context or setting is different, the experiences in nature are the same.

Furthermore, as I continue to describe and discuss my other two nature-based settings in this research story, it will be revealed that labeling special places and a sense of place, was also consistent within the other settings and groups. This meaningful sense of place resonated also with Nabhan & Trimble (1994), who suggest that places that children are intimate with, mean more to them than any other panoramas we could

ever show them. Within these spaces, the children become rich storytellers as they share their storylines, construct concepts and build their understandings of the special places that they have come to care about.

So far on this nature-based journey, I have discussed the most noticeable element in the first setting, of children expressing their sense of freedom, and making their own choices. This feeling of being less constrained in both body movements and in the structure of the day's activities, was expressed through the children's movements, body language and sustained verbal conversations.

Also noticeable was the desire for the children to share their familiar and special places with me as the participant-observer, the complex thinking and creative conversations that were shared along the journey; the keen observations of the children in noticing all the details of their environment that change daily; the collaboration between groups of children to engage in play scenarios or explorations of their surroundings; and the immense desire to collect natural loose parts along the way. These elements will be discussed further, as recurring themes across all three settings, in the next chapter.

The natural park environment presented itself as an agent in the curriculum (Orr, 2005), or as the 'third teacher'. The environment viewed as a 'third teacher' was brought into early childhood education awareness through the schools of Reggio Emilia, Italy. In the Reggio Emilia approach, grounded in the teaching philosophies of John Dewey, Lev Vygotsky, Jean Piaget, Jerome Bruner and others; the environment is recognised for its potential to inspire children, emphasising hands-on discovery and learning that allows the child to use all their senses to learn. As researcher in my research story, I have also viewed the natural environment as a third teacher, as it speaks to the children about what they can do, as well as how, with whom and where they can do it.

...Back on the nature walk in the park, some children choose to rush to certain features, others choose to walk slowly or spend periods of time sitting down, lying down or rolling on the ground. Provision is given for all types of exploration, play and investigation as long as the children are in sight of a teacher. Children climb trees, pick up sticks, stomp in cowpats or poke at them, roll down hills, clamber over rocks and up hills, climb wire fences and wooden gates or use fence stiles to climb over fences. They hide in long grass, swing on tree branches, collect, carry or make piles of loose parts such as cicada shells, pine cones, branches, twigs, leaves, seed pods, flowers and acorns. The children chase one another or explore on their own, they watch and pat farm animals and observe wildlife or insects.

Nature's loose parts

As participant-observer in this setting, I observed loose parts in nature providing endless opportunities for creative thinking and imaginative transformations. My research poem titled *Stick Boy* describes how several different sticks became transformed by a boy's imagination to become different objects. These transformations by a child, involve "representational and symbolic thinking" (Tovey, 2007, p 19), whereby a child uses objects symbolically.

Stick Boy

A stick can be anything and everything...

 Until you find the perfect one

 A physical presence in a little boy's world

 A cherished object connected to a place

 Selecting some – ignoring others

 A look of wonder on a little boy's face

Stick boy, stick boy

What do you see?

A world of endless possibilities

At first unknown

Until the perfect stick is found!

Creative thinking and imagination abound

Visualisation acutely engaged
Emulating all that you have known
Machines and tools and useful gadgets too
Using nature's loose parts as your improvisation
With time and space - you make believe
And make meaning from all that you have seen

At first a chainsaw
Then a poker
One perfect stick replacing another
A hammer, a broom
Whatever next!
The sticks keep coming
Until with absolute delight
There is one more perfect than all that came before
One you did not know existed
Until you saw it!

At first you walked over it
But your steps you did retrace
There it was – the perfect stick in your embrace
A 'Y' shaped stick looking like something you had seen before
What did you find so interesting?
Why did you need it more?

All other sticks were tossed aside
 "Hedge trimmer", you called out loud
 Then your actions told the story – no words
 Only the sounds of...
 A pair of wire cutters cutting the wire fence
 A bolt cutter breaking through the chain
 And a grass trimmer cutting the lawn

Multifunctional,
The testing was almost complete
Endless possibilities!
But not until you had found
The most perfect stick
Just lying on the ground!

This poem reflects the child in nature editing the curriculum on offer. A child being contemplative, curious, competent, confident, creative, connected and actively involved in his own learning and making meaning of the wider world (Observed at On Top of the World, 25-2-14).

This description of the ‘child in nature’, links to the strands, principles, goals, aspirations and ideas of holistic development central to Te Whāriki, the New Zealand Early Childhood Curriculum statement (Ministry of Education, 1996). Also central to this view, is that regardless of whether the nature-based environment is a park, community garden, woodland area or empty section it is a valuable context for learning, particularly due to its diverse and abundant natural elements.

William’s stick hammer, stick broom, stick poker, stick hedge trimmer, stick wire cutters and stick grass trimmer were all props that helped him explore the meaning of tools. William recognised that these tools had a particular shape, particular use and particular names. When he saw a ‘Y’ shaped stick, he knew this was more representative of a particular gardening tool, or in this case a few different tools and he then acted as if it was this tool.

Tovey explains that in reality, things dictate what we have to do with them, such as tools having a specific use, but in play the situation is reversed and ‘actions arise from ideas rather than things’ (Vygotsky, 1978 cited in Tovey, 2007, p. 19). William had to hold on to two concepts at the same time – an object with a specific use and

transforming this to another object as an abstract idea with all the actions, vocalisations and language that arose and were related to that idea. Consistent with Vygotsky's thinking, nature play, and particularly the natural loose parts abundantly available in nature play; allows children to explore meaning and contributes to the development of abstract thought (Tovey, 2007).

...In setting one, the nature-based walks in the park continue for a good two hours or more before the group circles back or takes pathways that lead back towards the entrance gates. At the entrance gates the children pair up with their buddies again, hold hands and walk in two-by-two formation back to the centre with an adult in front leading the way across roads and along footpaths, and with one adult behind ensuring everyone stays together. Children often choose to carry loose parts that they have collected back to the centre, but with only one free hand to hold things they are restricted to only bringing one item back with them. Sometimes loose parts are gathered as a shared collection and are carried in a container or bag back to the centre.

On arrival back at the centre children clean their gumboots if needed, sort any loose parts they have gathered and wash their hands in preparation for a group time and/or lunch or afternoon tea. Sometimes the children choose to make displays with their loose parts, utilise them around the centre – perhaps in the sand pit, or water play, and display them in their individual portfolio books or artwork.

Section Two: The Children's Garden (Setting 2)

Let me first distinguish setting two from setting one. *On Top of the World* is a setting in a large urban natural park, with many variable destinations to visit each session, diverse topography, lots of open spaces, and opportunities to engage with different animals and insects. In comparison, *The Children's Garden* provides visits to a smaller urban community garden and nature reserve, which still offers diverse plants and habitats for insects and birdlife, but not the same large open green spaces and variable destinations as in the first setting. The nature reserve however, is a destination that is regularly visited by the groups offering continuity and familiarity of experiences and special places within the setting. There are variable routes for the journey there and back, through the local neighbourhood.

When I meet up with the child and adult participants in this setting, I discover the group of children is made up of about nine or ten 4 year olds, who are chosen as a group for the period of one term. This group engages in 'walk about' excursions in the local urban community. The usual walk about destination for the group being a community garden, nature reserve and linked walkways. At times however, instead of out of the centre excursions the group utilises a fenced natural back yard wilderness, separated from the traditional equipment based outdoor play area, at the rear of the centre property. The same two teachers accompany the group on each excursion. They leave at around 9.30 a.m. or 1.00 p.m. on a day at the beginning of the week, and then again for a second excursion, later in the week.

The children gather as a group prior to leaving the centre. High visibility vests are to be worn and are handed out. The children are sun blocked if needed and checked for hats, and appropriate clothing and footwear for the weather conditions. The group has a discussion as to the suggested route to get to the destination and any specific tasks or activities planned for the excursion; such as planting, watering or weeding in the Centre's plot at the community garden.

Children are paired with a buddy to walk down the street and across two side streets. Sometimes they follow a path through the local school grounds, and then across a pedestrian crossing on a busy main road before reaching the community garden. The community garden is situated at the entrance to a local nature reserve and walkways.

In common with the first setting, children spend around two hours out of the centre before returning. A visit to the community garden section of the nature reserve usually occurs at the beginning of the excursion, but sometimes also at the end. For the rest of the time the group explores the nature reserve with its abundant flora and fauna, pathways, stream, bridges, orchard section, flat grassy areas, natural bush area, art sculptures and local urban neighbourhood.

The children utilise all these areas within the nature reserve as a group, but are able to explore and play independently or in small groups within the larger group. Different parts of the nature reserve have special place names and stories attributed to them, as in setting one and are often revisited each visit as a continuation of the stories and activities from previous visits.

The ‘troll’ bridge

The children explore the surrounding undergrowth of trees with the visiting child from the neighbouring house - collecting pinecones and sticks as they wander about talking constantly to one another. They end up underneath what they refer to as the ‘troll bridge’. They are able to stand up underneath the bridge before it crosses over a creek and announce that this is their ‘new hut’.

There is a ‘troll’ like graffiti picture on one of the columns underneath the bridge – the children believe they have found the ‘troll’.

(Observation from The Children’s Garden, 28-2-14)

A number of research studies note that there appears to be a universal childhood experience of making and naming special places (Chawla, 2007; Kylin, 2003; Nabhan & Trimble, 1994; Sobel, 1990). Sobel explains that as the child moves from the home site they seek to create “new homes, homes away from homes...a small world that they create from the raw materials of the natural world and their flexible imaginations” (Sobel, 1993, p 160). Intimate familiarity with a place, as discussed earlier, and shown by the narrative above, becomes a personal sense of place, suggests Chawla (2007).

My retelling of the *Troll Bridge* play scenario has been chosen to further emphasise the way that children name their special places, but also to show that similar stories can be found in similar nature-based settings. Campbell & Thompson (2013) share one of the stories from their investigation of young children and adults set in a nature-based environment; that tells of a beloved location also named ‘Troll Bridge’. This special place for the regular walking trip group of three-and-a-half-year-olds, was named for its old brick bridge over a small creek, with lush vegetation and a climbing tree nearby, and was viewed as a cherished walking destination. A favourite activity for this ‘Troll Bridge’ in San Francisco was pretending to fish in the stream with sticks and peeking inside the bridge for any signs of the troll.

Throughout this research study I have heard many shared nature play stories from New Zealand educators, as well as visiting authors, educators, environmentalists, professors, natural playground specialists and researchers from around the world; for example Dr Andrew Lockett (UK); Associate Professor Affrica Taylor (Australia); Ken Finch (USA); Rusty Keeler (USA); Richard Louv (USA); and Adam Bienenstock (Canada). From listening to others retell stories and poignant moments in nature play, both autobiographical and in experiences as adults in nature-based settings with young children; there were shared commonalities. Universal encounters and an embedded relationship between people and nature was evident; in that the stories and pictures sounded and looked just like my nature-play stories and photographs.

The children could have been the same children I have observed in New Zealand, all doing the same activities, sharing and collaborating, creatively using natural resources, sustaining conversations as they explored and discovering new wonders together. A review of academic journals by Taylor (2013) suggests that research about children's relations with nature (or lack of) are gathering pace, collectively delivering a body of evidence that supports the claims that children are becoming disconnected from the natural world; and that "these trends correspond with adverse health, cognitive and social outcomes" (p. 52).

Taylor (2013) also reveals how evaluative studies of programmes designed to facilitate children spending active time outdoors in natural environments, as in the three nature-based settings of this study; "consistently find evidence of physical, psychological, social and/or cognitive benefits" (p. 52).

A secret place

On arrival at the nature reserve today, the group walked past the community garden because teacher Gina wanted to show the new group of children a 'secret place' – a hut that the children had built during the previous term walks. But the hut within the undergrowth of the trees was no longer there, so we continued walking to go and see another special place – 'The Castle' and the dragon in the castle.

On arrival at 'The Castle' the group shared this special place with me and as we shared a picnic morning tea they relayed stories to me of different things they had seen on their 'neighbourhood' walks during previous visits. One story was about how they had seen birds sitting on eggs and how the parent birds had squawked at them when they had tried to take photos. They also told me about when their parents and other visitors had joined them on their walks. (Observation from The Children's Garden, 18-11-13)

In Kelly & White's (2013) New Zealand project, it is expressed that "teachers were seen as strong advocates for the notion that repeated visits to one location foster place-responsiveness in children" (p. 42). They also draw on the four principles of Te Whāriki (Ministry of Education, 1996) in their discussion of place, suggesting that place-based relationships lead to a sense of ownership that is linked to notions of family and community. In other words, this can be described as a sense of belonging to a community and the familiarity of a place to the people in that locality.

On the walks to and from the familiar and local community garden and reserve, a big emphasis is placed on road safety, with road safety rules role modeled and reinforced at each road crossing. Children also intently observe and discuss the local neighbourhood and landmarks, and practice their way finding skills with different routes available to them for reaching the same destination in their community.

A further learning outcome for children, suggested by the exploration strand of Te Whāriki (Ministry of Education, 1996) is the knowledge that is developed of familiar land features, which are of local significance, such as the local river or mountain. In the settings within this study, these familiar and significant land features presented themselves as the local stream crossed by the Troll Bridge and other bridges in setting 1; the local mountain and smaller hilltops, one of which was named The Top of the World in setting 2; and the woodland area in setting 3, with its tall native tree groves and abundance of native bird life.

Gleeful play

On one particular day in December, the nature excursion for the group of four year olds at *The Children's Garden*; becomes a journey into a grassy wilderness area through a gate in the boundary fence of the outside play area. This is instead of the

usual walk and excursion to the nearby nature reserve and community garden. The wilderness area is an unused area at the back of the centre property that is on a sloping terrain, bordered with fences and trees and has long grass as the terrain surface.

Towards the end of the play episode the gate from the centre is opened allowing other children not usually in the group to be included. The shrieks of delight from the group of children spread through the whole centre, resulting in infectious laughter and sustained play in the wilderness area. Tovey (2007) describes gleeful play moments in her research of children in nature, which parallel the following narrative. Tovey states that, “sometimes the glee is contagious and ripples throughout a whole group...” (p. 21).

Grassy slope story

Connie (teacher) brings a light rope to assist children with climbing up the grassy slope and attaches one end to the wooden fence. Some children are having trouble pulling themselves up the last steep, slippery part of the slope – covered in long grass.

The group of children, work out different ways to come down and back up the slippery slope. They experiment by lifting their legs up in the air and also lift their hands up, as they slide down to see which ways are faster.

They also experiment with ways to get to the top – using hands and feet (on all fours), using the rope, or holding the long grass and pulling their bodies up.

Zane - “ Look! I can climb with the grass” (uses the long grass to gain leverage and pull himself up)

Jayden - “I’m following your way (follows the flattened grass trail towards me)

Shaun starts to pull himself up with the rope and the rope breaks. He tumbles in a backward roll down the slope, laughing gleefully.

Shaun - "Rope's not strong enough!"

Shaun finds another track back up to the top of the slope, but is unable to get himself up the last steep part. He continues to keep trying to get up but the last part keeps evading his efforts. Shaun is given the length of rope tied to the fence again (slightly shorter this time due to the piece that broke off). He tries to pull himself up with the rope but tumbles backwards again. Shaun is enjoying his tumbling as he is continually laughing and smiling. He eventually returns to the bottom of the slope.

Shaun - "Excuse me, he says. I'm going this way."

He turns and looks around.

Shaun - "I can't" (explaining that he can't find his way to the top).

Shaun - "Look, I'm coming this way."

"It's too wobbly this way."

"I need someone to hold my finger."

Shaun - "It's wobbly. Too wet. Too wet." (Gina holds his hand and they return to the rope climbing area, but it is now apparent that Shaun is having difficulty climbing up the slope because his slip-on style shoes are too big and keep slipping off his feet as he climbs)

I observe Ruby coming down the grassy slope on her bottom, slowly and cautiously. She returns to the top of the slope, on her own while the others in the group have gone to the shade of a tree to eat morning tea. Ruby repeats the slide down the grassy slope on her own – slightly faster but still cautiously. Then she joins the others for shared picnic morning tea.

While eating Vicky calls out - "Do the rope again!"

Zane and Molly are the first to return to the grassy slope.

Finn joins them – they climb and slide and tumble together repeatedly.

David joins them.

Vicky and Jayden join the grass climbers, sliders and tumblers. They repeatedly tumble over one another – climbing, sliding, doing roly-poly, shrieking and laughing.

Aaron and Sasha arrive. David calls out, “Roly-poly”.

Ruby slides down the grassy slope holding a daisy chain in her left hand. She immediately climbs back up again. Then repeats coming down, going up and down again several times. She is smiling continually and is reaching the bottom of the slope faster and faster each time.

Luke joins the group on the grassy slope.

Luke - “Hello, Connie said we could come down too!”

“Hello guys – why did you have a picnic there?”

(He picks up the broken rope piece) “What’s this for?”

“Where’s the other pieces?” (He runs with the rope piece over to Gina)

Trent (toddler) also joins the group from the Centre – he displays absolute delight at being able to join in the fun on the grassy slope.

Ruby repeats her grass slides over and over again – she is a lot faster, as she has mastered her downward technique by pushing with her hands to gain more speed.

I notice Shaun finally reach the top of the grassy slope unassisted (the grass has been trampled down a lot and is less slippery).

Ruby (calls out) - “Watch out!” (As she comes down the slope again)

Some of the original children have returned to the Centre and a few others have come to join in with the play in the ‘wild grassy space’. The play I observe is very physical – the children are huffing and puffing and physically exerting themselves.

Soon, Connie calls out “Time to do a last roly-poly”

Luke - “Uhhhh!” He grunts with displeasure at this announcement.

Ruby - “Watch Out!”

Ruby calls out confidently as she completes her last slide down the slope. With her hands and legs raised off the ground, Ruby has mastered how to descend quickly and enjoys the sensation of speed and personal achievement (Observation from The Children’s Garden, 9-12-2013).

This narrative although long, was chosen as transcribed prose, to describe the engagement of a group of children in a sustained episode of play in a naturally wild grassy play space. This natural play space was surrounded by neighbouring properties with tree and bush borders. A high wooden fence divided the natural area from the centre playground of built play structures, sandpit and centre building, making it a secret, novel and special place to visit. The characteristic of gleefulness in the children's play contributed to a sense of this natural play place being a place of joy (Tovey, 2007). This naturally wild grassy space afforded children greater freedom to fool around and slide down the grassy slope, to innovate different ways of climbing back to the top, to develop their own rules about their play, and to discover how to share this sense of pleasure with others. Dunn (1988, cited in Tovey, 2007, p. 21) states: "discovering how to share a sense of absurdity and pleasure in the comic incidents of life is an important step toward intimacy".

The natural setting provided a rich context for play, exploration and discovery. The area was initially explored by the children, then with the addition of a single piece of rope, moved into a problem solving experience; then into a rough and tumble game with the children innovating and developing the game and the rules of the game. The gleefulness of the play encouraged Ruby to try sliding down the grassy slope to receive the same enjoyable feeling as her peers. This was obviously a new experience for her, but she mastered the skill of sliding down quickly and showed she was capable and competent and gleeful. Research by Bohling, Saarela and Miller (2010) on children's skill development in a Nature Explore Classroom, presents data that also illustrates that, for young children, outdoor learning promotes mastery. "Materials are 'real', open-ended and accessible. Children can repeat self-initiated experiments and refine skills at their own developmental pace until they achieve mastery" (p 64).

Having fun, expressing humour and experiencing gleeful play is not unique to outdoors and nature play settings, but in this natural context it often thrives because there is greater freedom, and adults can be more open to playful romping (Tovey, 2007). It is also maintained by other researchers (Bilton, 2002; Maynard et al, 2013) that adults appear to relate differently to children when outdoors. Adults have been observed as being more relaxed in outdoor natural spaces and this means children are more able to push the boundaries of who they are and what they can do, without fear of being admonished for being too boisterous, loud or messy.

The first two settings have shown that the provision of natural elements, natural topography and different terrains in a more open-ended and unhurried way; offer novelty and diversity that may not be provided by most fixed playground structures and structured play activities, within fixed time schedules. I will now move on to setting 3, *Meadow Views*, to present an overall picture of the nature-based experiences within this final early childhood setting, to describe what it is I saw and heard and experienced here.

Section Three: Meadow Views (Setting 3)

Meadow Views is the name given to the third and final setting in my research story on nature-based play. To remind the reader of the three different settings that make up this research story, *On Top of the World* (Setting 1) is a large spacious natural park environment visited regularly by an early childhood centre located nearby. *The Children's Garden* (Setting 2) is a smaller nature reserve and community garden visited regularly by an early childhood centre in the local urban area. *Meadow Views* (Setting 3) has the added advantage of being situated within the wider rural grounds of the early childhood centre, with more natural elements and natural landscapes surrounding the children during their walks to the regularly visited woodland destination. All three settings however are current provisions by early childhood centres in New Zealand, to engage young children in nature-based play and learning activities.

Children have finished morning tea and are preparing for the whole centre group of infants, toddlers and young children to walk the farm road on the centre property. The farm road leads through farm paddocks to a large wooded area of a variety of mature native tree groves and grassy clearings, surrounded by meadows and natural scenic views of the countryside. The final woodland destination is naturally formed and is visited regularly, around 2 to 3 times a week.

Children are sun blocked if required and checked for appropriate clothing, footwear and hats. The older children gather outside with some of the teachers for a roll check, before they start their walk by exiting the outside play area through a gate to the centre car park. In the car park area they meet up with the other teachers who have exited the centre building down a ramp. These teachers pull a wagon carrying supplies for lunch, and push the infants and a child with special needs, in their strollers. The children know the way and choose to hold hands with another child or

adult, walk on their own, hold on to a stroller or help with pulling the wagon as they follow the gravel farm road. The children know that if a vehicle is seen, they walk to the edge of the road, stand still and hold on to the wire farm fence.

Along the farm road, the group passes grassy meadows and paddocks of horses and other farm animals in their fenced enclosures. The children have sustained conversations with one another and with the adults along the way, about what they see, what activities they want to do today, and about their past experiences in the woodland area or at home. Some children run on ahead leading the way, others walk slowly and initiate conversation along the way; while others explore obstacles like jumping in puddles or dusty potholes on the road, and climb over or under wooden gates and fences. The journey it appears is just as exciting to the children as the destination and as already mentioned provides the time and place for children to initiate and sustain conversations, as well as sharing their creative thinking and working theories about the living world as illustrated in the following narrative:

Volcanoes and dinosaurs

Steven is extremely expressive with his hands today, as he describes in detail the process of volcanic eruptions forming rocks above the earth. As we walk along the farm road on our way to the woodland area, with my hands being held by two young girls; I am unable to immediately write down Steven's words as he speaks. I listen carefully and show great interest in his story...

Steven adds to his volcano explanation, his hypothesis of how the dinosaurs were made...I remember him using and emphasizing the word 'probably' to reinforce to me that this was his perspective on how dinosaurs were 'probably' made – he never once claimed this to be a given fact.

*Steven's words remembered: "Volcanoes track under the earth – the lava goes through the track and then it goes to the volcano and it makes the volcano hot, and that's how the rocks get made. Then it bursts out the top – all at the same time. And, I think that's probably how the dinosaurs get made. Dinosaurs step in the lava and that is how (tense changed) – that **was** how they got their prey. When people jump in to the volcano they turn into rock people" (Observation from Meadow Views, 7-3-14).*

In this moment in time, Steven was reflecting on the volcanic rocks seen in the farm paddocks we walked by. He had obvious prior knowledge of rocks, volcanoes and the elements of a volcanic eruption. He also knew that the rocks were very old and creatively linked this to dinosaurs also being from a long time ago. Steven was making connections between volcanoes and dinosaurs and making up his own theories of how these things came about in the world, but also suggesting that his ideas were probable and not a proven fact.

On arrival at the woodland area and grassy clearings, the children have the freedom to roam and explore different spaces within the wider farm fenced area. Infants are kept close to their caregivers, but toddlers and older children are free to go off on their own if they wish. Children disperse to favourite areas, to be on their own, to explore, or to be with groups of friends in specific areas. There are numerous trees for climbing, ropes for swinging on, tree trunks to climb along, grassy areas for running, hanging vegetation for hiding in, tree stumps to sit on and rocks to clamber over.

Lost and found

On a day in December, as I observe a group of children at *Meadow Views*, the children begin giving me a detailed demonstration of how to build a campfire and how to collect sticks for toasting marshmallows on. The small group of children are role-playing being different family members with different roles designated to each member within the imaginative family. While I observe the children, I catch a

glimpse of an individual child, I'll call Skyla, as she explores on her own in the distance. Skyla eventually approaches the group and seeks me out to converse with. This is her story conveyed in poetic form (Observation from *Meadow Views*, 12-12-2013).

Lost *then* Found!

In the distance a little girl plays
Healthy, authentic, solitary play
Unencumbered by adults, screens and toys
Exploring and investigating the world on her own
Quiet contemplation in time and space
Her very own special place
Tuning in, not tuning out!

Then!

Her sudden realisation
A need to share her thoughts
Lost then unlost on familiar ground
"I found you", she said
"I was lost", she happily declared
No judgement given, no opinions or fears relayed
Just affirming her thoughts is all I gave

Then!

"I think I'll get lost again", she said
A return to her quiet place, she did return
Her choice to be alone and unfound

Yet knowing where she was
Meant knowing her way
To be by herself, but not totally alone
In sight of others, yet far enough away
To be aware of her self

Then!

“Here I am”, I heard her cry
From the circle of old tree stumps
The little lost girl
Who had found her self
In the lore of woods and wilderness
Discovered her desires, her needs
Motivated to express her self
Her thinking infused with all she had felt and seen
Motivated to learn
Sensory, emotionally, bodily and soulfully!

Then!

Returning again
From that special place
Once again, she did proclaim
“I was lost”
“I was pretty lost”
“Shall I go and tell Lynley I was lost?”

And off she ran
To tell the world what she had found
That being lost can be good
As long as others are around!

This poem reflects a poignant moment in nature that I have recounted in my mind and told as a story to others, many times. A story of Skyla being motivated to fulfill her own needs and desires, motivated to play on her own and transform her own learning and perspectives on being lost and found. Skyla was able to make her own choices, to problem solve, to be independent and to share her experience and feelings in an interaction with an adult. I believe this interaction with myself as the adult researcher, impacted on the experience and associated learning, for both the child and the researcher and although the story is about one child, it also resonates with all children being able to have freedom to make their own choices, explore freely in nature and express these experiences with others to make meaning from and learn from the experience.

Poetry, as a special language, is particularly suited for conveying moments that arrive with a sharp poignancy in the field as a researcher. In such a sense, poetry offers a way of communicating instances when we feel understanding of a real experience in time, place and context needs to reflect and express the complexity or richness of the experience. Furthermore, poetic representations can provide the researcher, and the reader with a different lens with which to view the same experience or setting, and thereby understand the data, and themselves in different and more complex ways.

This reflective framework shifts my thinking about my relationship with nature, the participants and myself, in ways similar to Taylor's (2013) conceptual framework of common worlds; in that collectives of humans and more than humans are full of unexpected partnerships and comings together. Taylor (2013) suggests that by focusing on childhood and nature separately the complex and inseparable bound of children's lives with all manner of other lives, other forces and other things is precisely what gets 'lost'.

My '*Lost **then** Found*' research poem then, also resonates with the idea of common worlds and unexpected comings together in a natural setting. By viewing nature,

children and others in a relationship of common good for the collective social group, we not only view a moment as a celebration of individual children's differences and individual children's experiences of awe and wonder; but also as what takes shape when we act on our curiosity to find out more about where we are, and who and what is there with us, in a newly expanded common world of human and others, and other things (Taylor, 2013).

Way finding

Returning to the concept of being lost and finding our way, research by Cornell and Hill (2006), suggests that the common goal when being lost is to find the most direct route to a familiar place; being the original paths, the origin of travel, places with people, or home. Skyla clearly sought to not be lost anymore, as she tried to make sense of the concept of being lost and then found - by joining the place where other people were gathered. However it appears that she did not feel alone when she was off on her own. As long as Skyla could see others, and as long as she knew she could reconnect with others when she wanted to, she felt safe to play and learn.

Interestingly, research in environmental psychology is beginning to help understand the behaviour of lost children and adults, and explain the various methods they employ in their efforts to become found. Syrotuck's (1977) case history analyses of a small number of children being lost, suggested that toddlers under the age of three are unaware of the concept of being lost. They may not feel alone when they are preoccupied with the activities of adventure and may not attempt to find a parent or other adult, for some time.

Contrary to this, Syrotuck (1977, cited in Spencer & Blades, 2006) also suggested that children between the ages of three and six do have a concept of being lost, and will often make some effort to return home or to their last point of origin, but lack strategic way finding skills. Skyla, who had just turned three years old, was observed

in her nature play exploration, as making meaning of and expressing her understanding of being lost and found. In Skyla's case it appears that she understood that one solution to becoming unlost when one wants to be, was to be found; and to do this she ventured to a familiar, or popular site with others present. When Skyla approached me as participant observer, to converse with, I ensured that my expressions both body and verbal, let her know that the lost then found experience was a positive, not a negative one.

Fairy tales such as Little Red Riding Hood, Goldilocks and the Three Bears, Hansel and Gretel, and Snow White, all tell of dark woods, witches and wolves and as Hill (1998) reminds us, "literature of the world abounds with fictional characters who lose their way in forest, desert, cave or sea....". Cornell & Hill (2006) suggest many of these fairy tales though have now been updated as urban myths telling of characters such as bad neighbours, strangers and mean dogs. I wonder if these updated and contemporary urban myths have come about due to children spending less time in natural places like woodlands, and wild spaces; and more time in concrete jungles or just indoors; as well as more time in structured and supervised activities that disconnect them from the natural world and the skills of way finding.

Being lost can mean losing one's spatial orientation as we move around in an environment, and particularly one that is not so familiar to us. When we find ourselves in new settings we rely on way finding cues such as landmarks, road signs and trail markings to find out way back to known locations. Hill (1998) suggests that "knowing where we are" actually means "knowing the way" rather than being able to pinpoint our location on a map. He also believes that for a child not to feel lost, it may simply mean being in proximity to someone who takes responsibility for his or her location.

In today's world there may well be less opportunity for children to venture away from homes independently and master way-finding skills, where they need to look for

landmarks as cues. There may also be increased parental fears, technology keeping children indoors, and the push for more structured activities in children's lives where children are transported there and back in vehicles. It could be argued therefore, that outdoor spaces provide children with greater opportunities for independence than more adult-controlled activities and spaces.

Time in nature continues in Meadow Views

...Sometimes the whole group in setting three will stay in this natural environment for lunch, either lunch being brought with them, or lunch cooked over an open fire. If lunch is being cooked the children assist in collecting wood for the fire, then when lunch is ready the whole group eats together. There is also often a time of coming together for storytelling and songs, particularly before returning to the centre. Children are encouraged to leave any collected loose parts on the grounds where they were found, which the children can then return to using on their future visits. As this is private land, there is not the problem of natural loose parts, huts or structures being interfered with or removed as in the other two settings, which are public parks and reserves.

Within the setting of *Meadow Views* it was observed that there was more freedom and time spent exploring than in the previous two settings. There was less time spent journeying to the final destination or between places at the final destination, which equated to more time exploring freely, and playing collaboratively for sustained periods of time. The play scenarios often resembled family play, and making sense of everyday experiences, including the family dog and cat and horse. The following narrative is just one of many illustrating the sustained collaboration between peers, the roles they played, the complex and sustained thinking the children engaged in during their play and how the rules of the games were continually being changed by the active and changing players of the game.

Out riding - bikes, horses and cars

Katie and Hannah are sitting on large rock “bikes” – then Katie gets off to “go to the shops”, she says. The two girls then swap bikes. “You can go on my bike – we can swap”.

Katie – “I’m going to the dairy”

Hannah – “I’m going to the supermarket”

Katie climbs over another rock – “It’s slippery”

Hannah climbs up a rock and Katie joins her as the rock is declared a horse.

“Giddy-up horse – share the horse”.

Hannah – “I’m the Mum okay” “Do you want to come to the park?”

Lucy arrives “Do you want to come in my car?”

Hannah – “Brmmm Brmmm – Big sister come here”

Lucy – “We’re washing my car” “Get a leaf – not lots though. Yeah put some water on it (from pool of water in rock)”. “I’m washing my car”, she repeats.

Mila – “Yeah” (Both Lucy and Mila wash the rock “car”)

Mila – “You can get on the back. I’m right there (points to front). Wash my big car” (The girls dip leaves in the water and wash the car with them).

Lucy – “Are you going to wash your car? Is this your car here?” (Moves to another rock)

Lucy – “Are we ready?” Have you got a sore tummy?” she asks Mila. “Have me got a sore tummy?” The girls move positions on the rock (front to back). “You drive okay!”

Lucy – “Put your seat belt on – Brmmm Brmmm Brmmm”

Lucy – “Get your hat off “(Removes her own and Mila’s hat and places them beside them on the rock)

The girls put their hats back on.

Lucy – “I haven’t got a sore tummy now. Hop on the front”. Lucy goes up front and Mila sits behind.

Lucy – “Are we going to pick the puppy up?” “Brmmm Brmmm”

Lucy – “Are we ready?”

Lucy – “Can you get me a drink?”

Mila gets off the car rock to go get a drink heading towards the campfire.

Lucy stops her – “No there’s drink down there”

Mila picks up a leaf and brings it to Lucy as a drink. Mila hops back on the rock. Lucy – “Have you got your seat belt on?”

Lucy – “Are you going to get your Mum a present?” Mila goes shopping then returns and hops on the back of the rock.

Lucy – “Put your seat belt on”. Mila does as she’s told – doing the seat belt fastening action.

Lucy holds up a stick. “This is a drink”, she tells me. “Can you buy me two drinks”, she says to Mila. Mila hands her some more small sticks.

Lucy and Mila then sit on separate cars. I ask them where they are going?

Lucy – “Supermarket”

Mila – “Park”

Lucy – “No supermarket”

Mila – “Park”

Brody arrives and sits on Mila’s car – “This is a two wheeler bike” he says.

Nick also arrives at the rocks and hops on the bike with Brody. Nick then hops off saying “I’m going to buy brown chocolate for Brody”

Brody sits alone and asks me if he can draw his motorbike in my notebook. I pass the notebook and pen to him and he draws his rock motorbike.

Summary

Some of the stories I have considered worth telling have now been told, plus much more than that. I have discovered new perspectives of nature play through the narratives and through the artful poetic approach, that I have chosen as an added tool for inquiry and writing about my nature-based play dates with children.

I have unfurled some descriptive narratives presented as stories and research poems, and comprising of actions, happenings, participant characters, dialogue, imagination, settings and plot - or the way the story is communicated; to explore what there may be to gain from nature play. With the descriptive narratives my aim has been to describe authentic individual and group nature play scenarios, in real life and every day early childhood settings. Children's lives in natural settings, where they have been led by their own interests and engaged in their own play scenarios; and inventing their own activities have then been revealed, transformed and understood by the act of storytelling and poetry, and therefore reconstructed for the readers in a meaningful way.

There are however many more narratives, and many more stories to tell. The recurring themes that have entwined themselves through the observations, transcribed narratives and poetic representations of my research story, will now be separated into words; but words like things in nature, have a life of their own as discussed in the next chapter.

Chapter 5: Recurring Nature Play Themes

Fresh eyes, frequency, freedom, familiarity, flora and fauna

My research story has been told as a story of layered relationships of meaning and interpretation. I have already looked at accumulating research literature, my methods of gathering data and the research methodology used to explore the nature phenomenon. I have also discussed converging theories and present trends about nature play and experiences in nature-based settings. My research has looked back at romantic notions from the past and forward to the future with new ways of looking at the nature and child relationship; asking: ‘What have we lost?’ but more positively ‘What can we gain?’

In chapter four, my aim was to describe nature play experiences that may not have been observed and described by others previously, particularly in a New Zealand context. I described and expressed what others may have had trouble voicing, because of lack of opportunity or because the voices in this research are predominately children’s seen or heard voices. The only way to gain real insights into children’s nature play was to go out into the children’s world of natural environments provided by three early childhood settings, on a regular basis. The richness of the real world was then sought, by going out with the young children into the world of nature. Through observing and listening for stories and information that could give depth and more understanding of nature-based play settings and experiences, data was gained. This qualitative data will be shared as further findings and discussions, in this chapter.

I will present more descriptive narratives and research poems in my analysis of the recurring themes that were noted in the nature-based play experiences. These themes presented themselves as significant factors in the data generated from my immersion, in the nature-based play and learning settings. In all three settings there was a wide

variety of activities initiated or invented by the children and different play scenarios evolved along the way. Some of these play scenarios provided poignant moments and presented recurring themes that will now be discussed in more detail.

The five main conceptual themes that I will discuss in this chapter are alliterated in a play with language, to assist in the remembering of the theme headings, in words. They are also presented in this way, to provide better understanding of the potential value and activities around each recurring theme. Expanding on this further, the five 'F' word headings are also expressed in a creative and poetic form as an expression of myself as an early childhood educator with a passion for fun with language, creative writing and storytelling. This sense of fun with language was also evident in the many engaging and reciprocal interactions with the child participants in this nature research, as they engaged playfully and socially, in fun and holistic ways. As a researcher wanting to shed light on the current phenomenon of providing nature play in early childhood settings, the five 'F' words or recurring conceptual themes that I will discuss further are: **Fresh Eyes, Freedom, Frequency, Familiarity, Flora and Fauna.**

1. Fresh Eyes: Child researchers with inquiring minds

Playgrounds should be renamed 'research environments' because that is what children are doing so vigorously. They are finding out how the universe works" (Fuller, quoted in Keeler, 2008, p. 33)

In this section, I will discuss what became the most enlightening and overarching theme of this study from all the diverse observations and narratives of nature-based play. This theme was highlighted to me in the minute-by-minute, hour-by-hour, day-to-day, week-to-week observations of children over time. My observations revealed young children as highly curious 'researchers'. As the quote above eludes to,

children's playgrounds or the natural outdoor settings referred to in this study, are also what Buckminster Fuller, scientist and architect of the geodesic dome has been quoted as describing as 'research environments'. The children within these research environments can be described as young, capable, confident and competent researchers noticing and inquiring about how the universe works with fresh eyes. The first theme I explore therefore has been titled 'Fresh Eyes'.

The natural environments that set the scene for my research story presented several recurring themes as children were engaged in nature play, however the one overarching theme or concept was the children showing and teaching me, as the adult participant-observer how actively, diligently and competently they themselves researched every element of these settings.

Young children have a particular way of interacting with their world and of learning about and from it. They interact and learn through movement and doing, involving their whole body and using it to find out and to express... Their brains are like sponges, noticing detail and things that adults miss or filter out (White, 2014, p. 2).

As an adult wandering through natural settings with children, I was aware of the natural aesthetics of the spaces around me. I noted the overall beauty of the landscapes and natural surroundings, taking in the new sights and sounds around me. It was not though, until I looked and heard what the children were looking at and saw what they were interested in, that I was made aware of a difference in our observations. I was not noticing the same intimate details as the children, or as the quote above suggests, perhaps I was filtering some things out.

From Gravett's (2013) documentation of children exploring a forest area around their preschool, she suggests from her experience, that children can show us things we

adults cannot see: “...we can catch glimpses through the lens the child uses in the natural world and find new ways to view the natural world ourselves” (p. 138).

In my observations of the three nature-based settings in this research story, the young children paid close attention and gave close scrutiny to all that was around them and what was happening here and now. Their immediate feelings, thoughts and making meaning from their experiences was highly evident as they made discoveries, made connections and expanded their awareness of the natural environments. This study of children as they see, hear, do, question, research and converse with others, provides support of the view that young children have a particular way of interacting with their world and of learning about and from it (Keeler, 2008; Meier & Sisk-Hilton, 2013; White, 2014). Tied to this, is the observed creative and sustained dialogue between children and other children, and interested adults that helps build knowledge and understanding. This is evident when adults and peers respond to children’s ideas and wonderings (Meier & Sisk-Hilton, 2013).

Highlighted for me during my fieldwork, was my observation of the ways in which young children, and very young children, notice and interact with the natural world. Pyle (2003) refers to this as ‘clear-eyed vision’. These interactions can differ from the ways in which adults may interact with nature. The children in this research story were playing and exploring in natural settings that allowed the children to display a child-led focus towards natural elements that interested them. They researched the natural environment through their direct contact and playful exploration of materials. Children then extended their researching skills further through their actions, language and collaboration with peers and adults.

In contrast, as an adult wandering through the same natural settings, I did not pick up loose sticks, or turn over rocks to see what was underneath them, or stomp in cowpats and poke them with sticks. Nor did I discover the weta sitting at the base of a tree, or

run up to the top of a small mountain to gain a different perspective of the world. Not that is, until I followed the children's lead and looked at everything with a renewed sense of vision, wonder and discovery.

Keeler (2008) draws our attention to the fact that children are literally closer to the ground than adults are, and that this may account for part of the fact that they form an up close and personal relationship with the world. He suggests further however, that our vantage points differ in deeper and more important ways. Children are tuned in to their experiences, in ways that too many adults may have tuned out. Children firmly live in the present moment. Keeler (2008) suggests that children can focus on small, intimate places and new and interesting things in holistic ways, that we as adults may take for granted.

As adults, we've been around the block and have learned some of what to expect from Mother Earth. We know the promise of spring. But young children discover the world each time they step outside. Young children are the greatest of all explorers. Finding themselves suddenly alive on a planet in space, they begin to explore all its qualities. Everything is new. All children want to know how they fit into the whole and what the whole actually is!

(Keeler, 2008, p. 33).

There is a further suggestion by Campbell and Thompson (2013) that "by bringing the child into a relationship with nature, learning is informed, inspired, and transformed for not just the learners, but those the learners come in contact with" (p. 106). This can certainly be said for myself as I co-participated and observed young children in natural environments and learnt about honing my own observation and researching skills from the young children in this natural constructivist-learning environment.

I have viewed the children in this study therefore, as active agents and researchers making meaning from real nature experiences and conversations as they unfold. In

these same moments there is also a renewed sense of alertness, to what this meant to myself as the adult researcher of children's learning and development in natural settings.

I think that the best hope for our species lies in learning new patterns of attention to each other and to the biosphere, patterns that grow out of curiosity and respect and allow for wonder and learning.

(Bateson, 2013, p. 99)

As the quote above suggests, deep engagement with nature grows out of curiosity and respect and this same deep attention to exploring and building on our experiences can foster further inquiry, respect and new learning and attention to each other, as learners.

Jayewardene (2013) explains three elements for successful inquiry. They are, first to be humble and recognise that you have much to learn from your students, and in my case the child participants in this research story. Second, approach your students and their needs to guide your teaching, and finally, to have a willingness to share your story. I have certainly been humbled by what the child participants have shown me. I have also embraced their needs for child-led investigations and freedom to explore their surroundings in play and development. Simultaneously, they have also guided my own development in teaching and learning. The willingness to share my story and the experience, is in the writing of this research.

The following observation, which I am re-telling as a narrative in my overarching research story of play dates in nature, is of children gathering fallen fruit from the ground and constructing a pyramid shaped pile from it. It is more than this though, as it reflects the children exploring their surroundings and initiating their own play or exploratory activities. The narrative describes a play continuum extending from one week to another, and a play continuum going from exploring first, to inquiring about what they have found and what they can do with what they have found. The players in the game or shared exploration were actively engaged and were creating a game or

activity that hadn't been determined beforehand. This game then continued on into subsequent visits. The children were masters at weaving learning by doing, learning by inquiry, sharing creative conversation and making up rules of the game throughout their play scenarios.

Fruit true haven

Shaun wanders independently over to the 'fruit tree' area. First of all he stands under the branches of an orange tree, then he walks and stands underneath the branches of a feijoa tree.

Shaun – “Hey guys, look at me!”

Molly comes over to investigate – she has continued gathering and has a bundle of sticks, a pinecone and some leaves.

Ruby joins Shaun under the tree...

Molly wanders off saying – “I want to climb a tree”, but she becomes interested in cicada shells she finds on the tree trunks and she shows them to teacher Dianne.

Some of the children investigate the fruit trees and talk about what kind of trees they might be. Vicky picks up fruit lying on the ground – fruit that is still green or yellow, and small and unripe.

Finn joins in collecting the unripe fruit that has fallen from the trees on to the ground and places them into a pile that he keeps adding to as he finds more and more fruit. We talk about how the fruit is camouflaged against the green and brown ground and how it is hard to see. Vicky and Shaun begin helping Finn collect the fruit and they all add to the pile.

Teacher Paula and the other children have gone to look at the swan plants and monarch butterflies at the Community Garden.

Vicky and Finn continue to collect both fruit and cicada shells. Finn starts making a pile of cicada shells separate from the fruit pile, on a ledge of a rock.

Teacher Dianne stays with Finn and Vicky allowing them the time to inspect the fruit trees for more cicadas and add to their pile.

Finn and Vicky notice that some of the trees have cicada shells and some don't. David comes back to join us.

Finn shows him his fruit pile and says to David – “Let's find more”

(Observation from The Children's Garden 24-2-14)

2. Frequency and accessibility

I have already discussed how children were observed looking at the natural world with fresh eyes, each time they ventured in a nature-based setting. I have formed the view however, that all five recurring themes, have shown to be entwined and woven together like the strands, goals and principles of *Te Whāriki*, the New Zealand early childhood curriculum guidelines (Ministry of Education, 1996). When there was more time provided for frequent exploring of nature-based settings, then the children became more familiar with special places and activities within each setting. The 'freedom', 'frequency' and 'familiarity', as well as the abundance of natural loose parts and animals which I themed together under the scientific description of 'flora and fauna', all worked together for the common good and in unexpected ways. All of the recurring nature-play themes factored into influencing the children's views of the world through their 'fresh eyes' and inquiring minds.

The 'Fruit tree haven' narrative shared in the last section continues in this section. This will illustrate the potential gains from 'freedom', 'frequency', 'familiarity' and 'flora and fauna', when there was a return visit to the same nature-based setting and same activity from a previous visit.

Fruit tree haven one week later (3-3-14)

On arrival at the nature reserve, teacher Dianne had the children sit together as a group, just inside the entranceway. Dianne asked the children where they wanted to go today and what they wanted to look at. It was decided by the children to revisit the fruit trees from last week, to see if they could find the fruit pile made by Finn.

As we all walked towards the fruit trees, I saw Finn find his pile of fruit – he pointed excitedly at the now slightly spread out pile of fruit, shouting out “There it is!”

David joins Finn and together with Ruby’s help they start picking up more fruit that has fallen from the fruit trees on to the ground, and they add this fruit to the pile - making it a pyramid shape again. The children find more small feijoas this week, which get added to the pile of green, yellow and brown citrus fruit. Within the space of a week the feijoas are now very noticeable on the trees.

David – “Hey Finn, I just saw something. A little one!”. (David finds some small brown citrus fruit, and he adds them to the pile).

Vicky also gathers fruit and adds to their pile.

Teacher Gina discusses the new season of Autumn with the children and how the leaves are changing colour. She explains how the leaves are falling to the ground and there are now feijoas (an Autumn fruit) growing on the fruit trees. They discuss how the fruit may be ready for eating next week.

Shaun is standing under one of the citrus trees and pulls a branch down towards his face – he smells the leaves.

“Smell it”, he says.

Gina and I both smell the leaves – I suggest that I can smell the rain that had fallen while we were walking to the reserve and Gina rubs the leaf and says she smells lemon.

David is still searching the ground for fallen fruit.

David – “Hey, we can use this one for the roof” (He finds a bigger piece of fruit – a green orange).

Finn finds a small brown lizard – he holds it in his hand and shows Dianne – it looks life size and possibly real.

I ask, “Is it real or plastic?”

Dianne takes the lizard, turns it upside down and reveals that it says “Made in China” – we both laugh.

David picks up the lizard – “It’s not real”

The lizard is placed on top of the ‘fruit pile house’.

Leaves have also been collected and added to the fruit pile house – green and red leaves collected by Molly and Ruby.

Finn picks up a stick – David says, “that could be the chimney”.

Before leaving the area to go for a shared morning tea nearby, David refers to the fruit pile again as a house – a house for the dead butterfly he collected from the community garden last week and was going to build a house for. “My butterfly likes this on its house”.

(Observation from The Children’s Garden 3-3-14)

It appeared to me that the children were joining the dots, as they made connections - linking their fruit pyramid to building a house, and the house to a place that was needed for the dead monarch butterfly, that was found the previous week. The children were learning about differences in fruit, when different fruits are in season and that there are differences in fruit trees discovered through sight, touch and smell. They also learnt that cicada shells are not found on all trees suggesting they have a preference for the type of tree they shed their shell on and that working and learning collaboratively together is a great way of finding out about the world. Collaborative and creative thinking, as well as humour assisted in learning about what is real and what is not, and what is natural and man made, as in the case of the plastic lizard ‘made in China’.

Not every contributor in Meier & Sisk-Hilton’s (2013) volume on nature and science education in early childhood, experienced children’s inquiring minds and curiosity as

I did. Mabel Young, in this edited volume describes how in her early observations of natural early childhood settings, the children were taken for a nature walk, with the main purpose of being able to exercise their legs and expend their energy. She felt that going on walks meant that the children were given the opportunity to be away from their early childhood setting and were able to take in the beauty of the surroundings and become familiar with the natural environment. Her early observations however, revealed that rarely did the children want to stop and investigate the natural elements along the trail, because of the hurriedness of the walks.

After reflecting on this and discussing with her co-teachers, Young changed the goals for walks, to incorporate a slower more explorative approach and found that children's science exploration and nature learning unfolded more if the nature experiences were slowed down, repeated and also extended.

This was the same as my findings of infants, toddlers and young children in all three settings of this study. The young child participants displayed a deep unhurried interest of their natural surroundings, using powerful observational and exploration skills. They displayed being curious reflective researchers of the natural world. This I noticed however, right from the first research visits, which would suggest the educators in the settings within my study, were already incorporating teaching practices and goals for inquiry, that resulted in a slower more explorative approach.

Furthermore, through the more expert guidance of older peers and adults (educators and researcher), children were observed building on their spontaneous and curious exploration, their discoveries and questions. Through more focused and sustained observations and conversations with others, children were mastering the skills of creative and critical thinking, intense investigation and therefore more in depth inquiry.

Through this new ‘research’ focus, role modeled by the competent, confident and explorative children that I was observing I have revisited my own observation techniques, with a more inquiring mind. I have delved deeper into understanding the relationship between children and nature, in a New Zealand context. Other main themes or concepts that emerged from observing children’s play in natural settings are what I am discussing in more detail throughout this chapter. Similar to children, a deeper level of research engagement assists in making new discoveries. These emergent themes about nature play help create shifts in thinking and understanding.

3. Freedom: Time and space

The third recurring theme that I will explore now, is titled ‘Freedom’, but as I have already shed light on, all five main themes and many others were seen as relational and interconnected. One or more of these themes, but most often more than one, factored together in the amount of potential gains for children, in their nature experiences and learning. Also observed were gains for children or children becoming more enriched, in their growing confidence, competence, well being, sense of belonging and stewardship or kaitiakitanga.

A story is set in a particular place and time and this research story is no exception. The place or places are the three nature-based settings and the time is here and now, with an expression of time also taking into account the time to slow down and observe the surroundings. Children in the three natural settings have been described as young researchers with inquiring minds, but they showed that they needed the freedom, time and space to explore what they saw and heard. Children needed to be able to touch and smell natural elements, they needed time to discover and make meaning through all their senses, body movements, creative thinking and shared understandings.

The complex expressions of time and freedom as observed in the nature play settings and experiences in this study, have been reconstructed in the following research poem titled ‘Expressions of Time’. This poem expresses how in the nature-based settings I

observed that being able to slow down and spend time observing the natural world, reflects an attitude of freedom. An attitude prevailed of looking at the environment with fresh eyes and a questioning stance, with attentive and unhurried adult educators. In all of the three research settings, the children had time to pay particular care and attention to the natural settings in which they were immersed, particularly if the adults in the setting were also attentive to this.

Expressions of Time

Today, we have time
Time to play
Time to discover
Time in special places
Time to slow down
At this point in time,
...there is no point in time!

Our senses are awakened
As children lead the way
Being in the moment
In wonder and awe
With time to appreciate
Time to explore!

Present together in a changing world
Changes in weather
Change of seasons
Changing times
In space and time
For time is where we are
And time is where we've been

Time is past

And time is now!

Time is waking me...

My mind races back
To another place in time
One that is memorised
In my adult mind
To times of the past
To times of joy

For time remembers...

When there were ages for play
And aeons for discoveries
There were wonders afoot
And under foot too!
But today, we have time

And time never forgets...

At times sunshine
At times rain
There's a time for Winter
And a time for Spring
A time for Autumn leaves to fall
And a time for Summer fun
The right place at the right time

Time stalls...

For the perfect time is now!

In this research study I have observed first hand, the positive elements of unhurried time and open spaces, freedom to explore independently, frequency of nature play experiences and familiarity of natural settings as influential benefits to children in their roles of ‘researchers’ with inquiring minds about the world around them.

Nature-based settings provide an environment where both children and adults can find peace and pleasure, increase their playfulness and feelings of freedom, discover new and renewed wonders and share creative thinking in making sense of the world. The child participants displayed that if they have unhurried time in nature they can influence adults as models of researchers, with curious minds and creative questions. Adults too, that have a favourable view of nature can transfer this to children in shared experiences in natural settings.

Even if children know natural spaces intimately, they almost always according to Pyle (2011) lack the ‘freedom of the day’, and the liberty to go out and explore unsupervised. The children in the nature-based settings in this research story were obviously supervised and had borders defining where they needed to stay within their settings, but they were afforded unstructured, child-led play that offered a type of freedom release. This sense of freedom was displayed in their body language, expressions, conversations, creativity and collaboration with others in an unhurried and calming way.

4. Familiarity of place and the concept of affordance

Familiarity

Described in several narratives throughout this research story has been the recurring theme of familiarity of place and the affordances offered by these places. Familiarity of place allowed the children and the adult educators in the nature-based settings to feel more comfortable and safe in their environment. This in turn, impacted on the

amount of freedom given to explore and the sense of connection, trust, wellbeing and learning attributed to this. It is fair to say that the child participants, adult participants and participant-observer were all captivated by the special natural settings and the novel phenomena in nature, experienced in this study.

Meir & Sisk-Filton (2013) suggest that it is not the novel that leads children to deep connection with and learning in nature, rather, it is the everyday, repeated experiences. It is discovering something of interest and returning over and over to observe it, collect new information and develop new theories. It is returning to a natural place week after week, and even year after year, exploring the same spaces in ever changing ways, but as a part of daily life. It is through the repeated experiences with familiar spaces that I too have observed children being able to take time to explore, to follow their own interests and passions and to discover and learn with nature.

Familiarity of place also aided in the groups of children and adults knowing the proximity of natural materials and targeted routes or sites within each setting. Favourite places and activities were then returned to regularly, based on the children's preferences and interests. Smaller sites or sub-areas within each familiar setting were popular with different children for different reasons. If these sites and activities within these settings were interesting to the children, they then afforded extended periods of exploratory play and learning. This new learning was indicated by the creative thinking, conversations and active doing, observed in all settings.

Affordances of nature

One theoretical perspective for describing and analysing nature-based environments in early childhood settings is the concept of affordance. The concept of affordance, can be viewed as the possibility or potential for action, by an individual (Gibson, 1979). It has been suggested by some researchers that nature-based environments offer a wide range of potential affordances to children (Fjortoft, 2000; Kytta, 2004; Stephenson, 2002).

In my research, actual observed real life experiences of young children in nature can be linked to the affordances of these nature-based settings and their potential for action. Through consistent observational methods, there is evidence of regular actions and familiarities in all three of the nature settings in this study. Over time, when children had regular provision to the natural world, the same recurring themes were seen. These recurring themes link to the findings of other research, of a similar nature (Dowdell et al, 2011; Fjortoft, 2000; Horne, 2010; Knight, 2013; Maley-Shaw, 2013; Miller et al, 2009).

Fjortoft (2000) has explored the relationship of environmental affordances to children's play and development, and maintains that environmental complexity and diversity in nature are highly associated with increased play opportunities and activities. In the field notes gathered in this study, I have explored the different ways in which the child participants, as well as the adult participants and participant-observer, utilised the affordances offered by the natural environments. I have asked what are the affordances observed in my research stories?

The affordances are many, ranging from running, climbing and swinging, to sliding, tumbling, stomping, rolling and jumping. All of these physical activity affordances have been observed in abundance as participants moved through the nature-based settings. The nature-based settings with diverse natural features and elements offered novel play affordances along the way. Affordances such as: bridges to cross, fences to climb, tree stumps to jump between, rocks to clamber up, fallen tree trunks to straddle and balance on, and stepping stones to jump or hop on to. These novel play affordances invited diverse play activities that encouraged the inclusion of natural loose parts as play props, which then afforded even more play possibilities.

Many of my observations suggest that natural spaces and natural features offer a large number of potential play affordances. Trees are one particular example of this potential for action in that they can be climbed and swung from and they can become

dens and hidden behind or under. Then fallen down, trees become an obstacle for climbing over and they provide material for hut building. Loose parts such as sticks, leaves and pinecones become props, and further to all these examples, trees also provide a habitat and life source for birdlife and insects.

Furthermore, natural environments that contain many different species of tree will extend the affordances of that space through the different types of fruits and seeds the tree produces, the different types of bark and leaf types; as well as the differences in formation of trunks, branches and roots that offer different affordances in the actions of being able to be climbed or hidden behind.

As suggested earlier in this study, the decline of easily accessible, safe and natural outdoors environments for children, makes early childhood settings one of the few everyday providers of familiar natural spaces, where young children can play, explore and investigate with others, on a regular basis. However for many early childhood settings in New Zealand outdoor space may be artificial, unnatural and manufactured, structured and with few variables, and offering little space rather than open natural spaces. As a result, many of the opportunities that a natural environment affords for play, may be missed (Tovey, 2007).

Conclusions that can be drawn from applying the concept of affordance to children's play in natural environments, includes the unpredictability of action by an individual playing child, or group of children. It would appear that natural spaces provide endless possibilities for different play affordances with the potential of the natural spaces matched only by the creative thinking of the child. Affordances can therefore be looked at to some extent as unpredictable and unique to the individual child or group of children.

In the following narrative the affordance of a natural setting is highlighted as two girls make a shared discovery about stomping in cowpats. They discover that the consistency of cow pooh is dependent on whether it is fresh, or has dried out some.

They make this discovery through their curiosity, their actions, the sharing of prior assumptions before experimentation, and then they share their empirical research with others.

Georgia stands in a cowpat with one foot and gets a little cow pooh on her sandals. "I didn't know it would be soft", she states.

She stands in another cowpat – one lighter in colour this time, and she realises that it is lighter in colour because it is drier than the first one and therefore is not as soft and messy on her sandals.

Bella joins in cowpat stomping (she is wearing gumboots).

Georgia – "Stomp in it"

Bella – "We'll have to tell the others we were standing in cow poohs"

(Observation from On Top of the World 18-2-14).

Research findings by Dowdell et al (2011) suggest that natural environments support children's imaginative play, the development of positive relationships and allows for the environment to become a place of learning. Natural spaces outdoors are often more varied and less structured than indoor spaces affording children opportunities for problem solving and creative thinking. In nature play it is also suggested that there is a greater range of loose parts, visual and gross motor exploration that induce curiosity and the use of imagination.

5. Flora and fauna: Nature's loose parts

Through this research story I have been seeking to find out whether natural environments offer the potential for a wide variety of and increased opportunity for exploration, play and learning opportunities. Nature is a huge supplier of free loose and moveable parts. The theory of loose parts is another significant theory in the

evaluation and interpretation of nature-based environments and the impact on children in these settings. Nicholson (1971, p. 30) stated, “In any environment, both the degree of inventiveness and creativity, and the possibility of discovery, are directly proportional to the number and kind of variables within it”.

Within the three nature-based settings of this study, children have been observed transforming all number of natural, small loose parts into props, to afford dramatic play. The loose part props provided children with opportunities to manipulate the environment and transform it into imaginary worlds. Loose parts also assisted in extending the play and learning possibilities within each of the potential nature play and learning places.

In chapter four, I used a research poem titled ‘Stick Boy’ to retell the story of a boy named William who created play props from nature’s loose parts. With William’s creative thinking etched in my mind, I related this experience to a later one in a typical outdoor early childhood setting with more synthetic play materials and structures, than nature-based elements:

One day, when I was relieving at a Kindergarten, the day after Cyclone Lusi had lashed through northern New Zealand, I noticed sticks, branches and twigs galore blown all over the outdoors play area. I gathered some of the sticks and initiated stick play in the sand pit, constructing stick houses. I also showed a group of boys how you could bundle up sticks, tie rope around them and carry them over your shoulder. Later in the day I saw the group of boys playing with the bundled up sticks. They had pulled individual sticks out and were using their newfound props as guns. I asked the boys, “What else could your sticks be?” but received no reply. So, I made suggestions – “hammers and saws perhaps?” The reply I received was “No – we already have those here”.

In this early childhood context, where the loose natural parts were not the only props or toys, or resources available to them, the sticks became what they did not have and perhaps were encouraged not to have – guns. The centre was already well equipped with hammers, saws and the like, with their known forms and functions. It was perceived by the boys therefore, that there was no need to imagine that sticks were these objects. There was a stand off of sorts, a boy with his stick gun, and me with my thoughts.

The poem Stick Boy Too came about from these reflexive thoughts and in my understanding of how the natural environment offers fluidity in using natural objects symbolically:

Stick Boy Too

Cyclone Lusi came to town
Blowing sticks all over the ground
With memories of Stick Boy clear in my head
I bundled up sticks
And made resources instead

I created some props
From Nature's loose parts
Not child-led, but simple and fun
I bundled up sticks
And waited for ideas to run

Stick Boy 2, Stick Boy 2
What do I see?
You carried the sticks
You created the game
You were being resourceful
You were playing the same

But the stick boy from the past
I would not see today
For when I ask
“What is your stick?”
“A Gun”, is what I hear you say!

Oh no not a gun, I think to myself
Anything but that!
I make suggestions...
I speak out loud...
“Perhaps a hammer, or a saw”
Something, anything
Like the stick props I had seen before
Instead, you could say
There was a stand-off, of sorts
A boy with his stick gun
And me with my thoughts

Then to my dismay, I hear you say
“We already have those here”
So a stick gun it is
And of course you are right
Not a hammer, not a saw
When you just don't have any 'guns'
Stick guns are what you want more!

This reflexive research poem shifted my thinking to feelings expressed by Robert Pyle (2011), that children know what is interesting when they see it. This action of children knowing what interests them when they see it was amplified in the three

nature-based settings of this study. One illustration of this was when the boy in the first *Stick Boy* poem, found a loose part in nature that interested him because of its shape and the tool it symbolised to him. Another is when a boy spent approximately fifteen minutes standing in one spot watching someone mowing the lawn then found a ‘hammering’ stick, as described in the following transcript:

Some children go to see what William has been so interested in for such a long time and they stand at the fence also watching the lawn being mown. When the children are called back, William slowly rejoins the group as well.

Kelly (Teacher) – “William, what did you see?”

William – “Lawn mower”

William picks up a stick, which is hammer shaped and he hammers the rocks with it. He wanders over the rocky ground banging different rocks with his hammer stick as he walks

We are then back at the wooden steps for exiting the park. William bangs the wooden steps with his hammer shaped stick and also uses it as a tool to scrape the loose stones around the base of the steps. William is told he can only bring one stick back with him. He chooses the hammer shaped stick and drops the other one.

Back at the Centre, William uses his hammer to hammer over the nails on the deck rails (Observation from On Top of the World 3-12-13).

Chawla (2007) found that beneficial nature play requires rich settings, with density of diversity in plants, landforms and animals that create a collection of micro-habitats and loose parts. The micro-habitats and loose parts afforded by the nature-based settings in this study, facilitated numerous opportunities for discovery and engagement. Chawla (2007) suggests that nature-based settings with diverse natural elements can therefore be considered as potential sites and elements for gains in development and learning.

I observed that an abundance of natural materials in all three nature-based settings allowed children's imaginations to create, co-create, invent drama, build stories and negotiate rules with other players. The young child participants, using both bodies and minds, interacted in social, self-led, unscripted, sustained and collaborative processes of active and dramatic play.

All creatures - great and small

The following narratives further describe children's engagement with things and creatures that interest them, and therefore facilitated their learning and development:

Merry mudlarks, a dead possum and beautiful birdlife

Just inside the entrance to the woodland area some of the children discovered a wet mud puddle. Anna and Trinity spent some time playing together, jumping in and out of this wet sticky mud. (It is interesting to note that prior to leaving the centre ground for the wooded area, Anna and Trinity had needed help in resolving an argument that arose between them. When asked to put a hobby horse away – both wanted to be responsible for this task. They took some time to calm down and needed adult support in resolving the conflict). Now playing together in the mud, they were the best of friends, engaged in co-operative and gleeful play. They removed their boots and were given time and space to explore the thick mud. Other children joined in but Anna and Trinity were the main players. The children made mud pies in their hands – slapping the mud between their hands and were heard saying “mark it with a B”, as in the Patter Cake Patter Cake nursery rhyme.

While the children were busy playing in the mud, one child (Oscar) spent a long time looking at a flattened possum that he had found nearby...

“Looking for its Mum”, he said

Oscar – “It’s a bit sad”

Olivia joined Oscar and repeated, “It’s a bit sad”. “It’s squashed”, she said.

As I am recording the mud play, I can also see that Oscar, and then two children, and then a group of children are looking intently at the flattened possum. At one point there is a small group of children all crouched around the possum – they discuss with one another how the possum had come to be dead and continue to wonder where it's Mother is. Olivia however, also wanted to know where the Dad is.

While the children were staring at the possum (and continuing to play in the mud), they also observed a kereru (native wood pigeon) in the tree above them and listened to tui's singing and the wood pigeon flying from tree to tree.

Jacob explored the surrounding area and found a slug under a rock, which he proudly showed to me. He also discovered maggots near the dead possum, which he continued to investigate with Grace. Jacob continued to explore the forest floor collecting and holding seeds from the Taraire trees and a slug, which he described out loud to me as a "slimy slug sleeping".

(Observation from Meadow Views on 15-11-13)

As the narratives demonstrate, young children have an intrinsic connectedness with animals and nature. As they show interest and intimacy with other species such as insects, birdlife and other animals they see in the nature-based settings, the connection deepens. The respectful interest they show builds on their intuitive reaching toward animal life (Melson, 2005).

Melson (2005) has examined young children's connections to animals and how their experiences may shape them as adults, suggesting that scholars and researchers have long ignored the developmental consequences of relationships between children and animals.

Caring for a dead monarch butterfly

All the children come back from the community garden. Shaun returns carrying a dead Monarch butterfly which he carefully shows to us.

Shaun - "It has a broken wing"

Shaun places the dead butterfly on the pile of fruit and places some of the small oranges on top of it to stop it from blowing away.

The children play with Finn and Vicky's pile of oranges – Shaun removes the dead butterfly and takes it over to the cicada pile. The cicada shells rest on one ledge of the rock and the butterfly on a smaller ledge above them.

David then removes the butterfly – "Let's make a nest", he says.

Shaun is not bothered with David removing the butterfly – he is busy transferring the cicada shells from the lower ledge to the smaller higher ledge that the butterfly had been on.

Shaun – "I put them in here". Shaun then starts crushing the cicada shells with his hands.

David continues to carry the butterfly around and Shaun tries to take it off him.

David – "I need to hold the butterfly. I held it first" - Shaun lets him walk away with the butterfly.

The children are told that it is time to leave and walk back to the Centre.

Finn carries a pinecone back – "I need to take this home"

David carries the dead butterfly – "I need to take this to my Mum and Dad"

David - "When we get back I need to take care of this"

David to Finn – "When you go to my house, we can build a house for the butterfly"

All the way, back from the community garden/nature reserve to the centre, David and Finn sustain a conversation about how they are going to build the butterfly a house. They discuss how this would work with David's younger brother and how they would go about building it (Observation from The Children's Garden 24-2-14).

Nature-based settings afford children the potential of encounters with other species such as insects, birdlife and small animals. Several narratives could be told of children experiencing the fascination of other species and embracing life and death in nature, in both flora and fauna. Potentially these experiences can be viewed as children connecting with the natural cycles of the earth and other species on Earth. An attention towards other species and an ethic of care shown by the children in the narratives I have presented; are rooted says Meir & Sisk-Filton (2013) in familiarity with and caring about the natural world.

Toddlers and preschoolers need not spend their time advocating for conservation. But they do need to spend time in and with nature, so that they become people who *know* the natural world, and thus are able to make good decisions about this planet we share (Meier & Sisk-Hilton, 2013, p. 218).

Ladybird, ladybird fly away home...

Bella brings a ladybird to show me – it is on her hand and she transfers it to my hand. We discuss how we need to hold the ladybird gently so as not to hurt it, and so that it may fly away if it wishes.

I pick a green leaf up from the ground and we carefully transfer the ladybird from my hand to the leaf. Bella then carries the ladybird on the leaf around, until it flies away.

Daniel spots a large forked branch on the ground with dead brown leaves still attached to it. He lifts the branch on his own but the size and shape of the branch makes this awkward and he doesn't carry it far. Daniel asks if I could help him, and I suggest he could ask his friends to help. Daniel then asks Mary for her help and together they pick up the branch and move it.

While they are moving it, Mary spots a blue ladybird on one of the curled up brown leaves – just like the one Bella had found. I come to investigate her

finding with her and we discover a second blue ladybird on another leaf. I remove the leaves with the ladybirds from the branch and hand them to Mary.

Mary walks around with one leaf in each hand until Bella approaches her and asks if she could see the ladybirds. After inspecting the leaves, Mary gives one to Bella. Bella walks to the base of a nearby tree with her leaf and ladybird, and carefully places the leaf in a little alcove at the base. She pushes the leaf gently in towards the tree and adds another leaf as if she has made a little house for the ladybird.

Mary continues to hold her leaf for a while longer then she places it on the ground and walks away from it too.

(Observation from On Top of the World 4-3-14).

Summary

The findings in this chapter support the view that spending time in nature is an important part of children's experiences. Children benefit holistically as the nature experiences promote playful learning engagement, healthy cognitive and physical development, a sense of wellbeing, creativity and imagination and positive environmental values. These influences all link to the New Zealand early childhood curriculum *Te Whāriki* (Ministry of Education, 1996) and therefore to education, planning of children's play spaces and teaching policy and practice. They also link to action and advocacy for connecting children with nature.

Chapter Six: Conclusion

Adding to the accumulating research on nature-based play, my research story has told a uniquely, New Zealand story. A story of children, as well as adult researcher learning lessons from observing, engaging in and researching play dates in nature. Evidence suggests that exposure to natural settings reduces stress, enhances cognitive development, benefits physical development, stimulates creativity and tunes in all the senses (Louv, 2011). It is the lessons learnt from or renewed from the real direct experiences with nature that lead the way in my theorising and concluding statements about the benefits of nature play.

My research story has been built on the direct stories from the research participants as they unfold. Shared experiences in real nature-based play spaces, regularly provided by three different early childhood settings over a six-month period. From the qualitative data, I have put forward observational evidence of the holistic benefits participation in nature-based early childhood settings, make in young children's lives.

Chapter one introduced the reader to the research topic and my reason for choosing the nature phenomenon in nature-based play settings as my research focus. The review of literature in chapter two presented a sampling of the emerging and accumulating research on nature-based play and the nature phenomenon. Delving into this literature highlighted three overriding themes to the reader. The first theme being that significant life experiences such as childhood play in natural environments, help shape later adult interest in natural places. Significant life experiences of conservationists in particular, have become a recurring theme in environmental education literature.

Research of significant life experiences, has been used by many nature advocate movements as evidence of the need to reconnect children to nature. The developmental importance of childhood play in nature-based settings, although long

discussed by environmental psychologists, landscape architects and play professionals, was popularised by Louv (2005, 2008). This now popular call to reconnect children with nature has helped promote a current nature phenomenon, in which the importance of nature play in childhood is emphasised.

The second theme highlighted in nature play literature asserts that there are many benefits for children who regularly engage in play in natural settings. Adding my research to this evidence base, I argue that when young children are provided with the ability to choose their own play activities and create their own play scenarios, in natural environments, that these factors are directly linked to children's play and learning. The environment structure and play functions afforded in natural settings, have a direct relationship to the types of play that children participate in. The diversity of the natural environment has a functional impact on children's behaviour and play performance because it increases the opportunities for creativity, learning, and development.

Emerging from the first two themes highlighted in the review of literature, are concerns around children's reduction in time spent in nature. These concerns not only relate to the possible effects less direct experiences with nature are having on children now and in the future, but also the effects on sustainable futures for all species and Mother Earth. If children are no longer deeply connected to the natural world, how can a sustainable future be ensured?

I argue that childhood engagement with nature is more likely to produce conservation minded citizens willing to protect natural resources. To achieve this end, playing and learning in nature go hand in hand, beginning in the early childhood years. Nature contact promotes better stewardship of the environment, for how can children grow up to care for what they do not know and cherish. Pyle (2003) calls the result of the loss of contact and subsequent alienation from nature the 'extinction of experience'. For children to be fascinated by natural elements, they need to have opportunities to

be the close and careful observers that they are and to build on this curiosity and exploration of the world around them. In this way they will not only appreciate nature and learn from nature, but also be protective of nature.

Today's children live in a very different environment, with fewer opportunities for outdoors play and nature play, with their lives much more structured and supervised. Playing outdoors is one of the things that has characterised childhood over past generations, with the view that nature play outdoors gives children opportunities to explore, discover, wonder, create, practice, change, recreate and learn about the world around them. Viewed from this perspective, play is a way that children optimise their own brain development and the nostalgic observation that children 'no longer play' or 'play less', or 'play differently', should be taken seriously because of the consequences for children.

Natural settings for children's play that previous generations may have taken for granted, must now be deliberately created or sought out for children. Two strategies can be pursued: bringing nature to where children are and bringing children to where nature is with frequent and recurring nature experiences. This is the exact type of nature play provision that was observed in the case of the three nature-based settings in my research story. This provision included nature experiences being frequent and recurring in familiar places. In the nature-based settings provided, children experienced a sense of freedom and the liberty to explore in a child-directed way. With an abundance of natural loose parts and experiences with flora and fauna, children were able to show how they use their fresh eyes to observe and explore and research and learn.

I argue that the provision of nature-based settings by early childhood centres in New Zealand, provides opportunities for young children and their teachers to experience the special interrelational qualities of natural places and natural elements between people, places and things. These special places in nature can range from small, humble places like local reserves and parks, empty sections and wild fenced off back

yards, to larger bush and woodland settings and beaches. All nature-based settings with diverse natural elements are of equal value in the potentiality of nature play affordances for young children.

The recurring conceptual themes that I encountered in all three nature-based settings tell the story of the rich and wonder-filled experiences the child participants were engaged with, in this research. The five 'F' word themes of *'fresh eyes'*, *'freedom'*, *'frequency'*, *'familiarity'* and the diverse elements of *'fauna and flora'* that children encounter in nature-based settings were presented as findings in chapter five. The findings of my research indicate that there are a number of factors that are important in the provision of nature-based settings and real nature experiences. When children are immersed in nature and these important factors are present in natural settings, holistic development is enhanced and learning enriched.

Observational evidence clearly described children in all three natural settings displaying a desire and delight to be free of restrictions and boundaries. To children, time is measured in units of joy and when children were seen to be able to run and climb and jump and roll over in familiar and special places, mindful provision of time and space was viewed as an investment in their learning. As children led the way, they enjoyed exploring and inquiring about the natural world with fresh eyes and engaged all their senses in direct learning experiences. Children were able to get dirty, to make their own activity choices, to build with materials gathered by themselves, to collect loose parts, to poke things with sticks or just quietly contemplate. These descriptions of children playing resonate with the rights of the child to play, and an understanding of children and play. They are also grounded in early childhood theories and philosophies that posit that everything starts with the child and not with the subject matter.

Methodological choices have played a large part in the way my research story has been set up to gather the observational data and to retell the children's play stories. The methodology chapter describes, how as a researcher, I did not yet know how

children really viewed the natural world. Not until I became an outsider looking in, with no other role to fulfill except that of observing children in nature-based settings. I became an ‘insider’ in the world of children’s nature play where I could truly reflect on what I was seeing in relation to what I already knew and what I had already experienced.

The children themselves in these settings have taught me how to delve into something deeper, to look and observe with fresh eyes and an inquiring mind. I was not totally ignorant but I was surprised by what I saw and my new perception of nature-based settings and the play and learning within these settings. As with many other researchers and authors, my views and analysis presented in my research story are not based solely on empirical evidence, but also on my experiences in nature as a child, and reflecting on nature experiences with children in my role as an early childhood educator over many years.

My research is therefore a story, a story of observations and transcribed narratives of what I saw and heard when looking closely. These are observations that others may not have had the opportunity to see and hear like I did, and my research story reflects how a person cannot know something without meeting it or discovering it personally. My research story is a story of common recurring themes that help answer the overarching research question: In what ways does nature-based play enhance children’s learning opportunities in New Zealand early childhood settings?

Just like my reflections in my *‘Lost then Found’* poem, and in statements relayed by Richard Louv, in his book *The Nature Principle* (2011), I have seen that one must constantly readjust one’s position to find the way through the trees or the way to share what I have seen, with a deeper understanding. As Louv (2011) states, “we cannot protect something we do not love, we cannot love what we do not know, and we cannot know what we do not see. Or hear. Or sense” (p. 104).

Chapter four presented diverse accounts of children engaged in and with nature-based settings, describing repeated activities and play scenarios across all three of the

research settings. These accounts of nature play also align with anecdotal narratives presented by other researchers and nature play advocates. The same things were being seen in the same types of places. I have read numerous accounts and listened to many speakers with regards playing in nature. All tell the same stories and show the same pictures of young children deeply engaged in collaborative play scenarios as they use natural elements to support their play and learning. The children and settings although different, could be the same, as they all follow the same story lines and bring the same recurring themes to the fore.

Through my research narratives and research poems, I have qualitatively interpreted children's interactions with natural early childhood play settings and I concur with other researchers that the natural environment offers children and adults something that the constructed and unnatural environment does not. In all settings offering diverse natural elements, whether it is a lot or a little, there is diversity in sensory experience, and diversity in the potentiality of affordances of natural environments. Nature-based settings are places where a child finds freedom, fantasy, fun and privacy from the adult world. Places where the child can explore, hypothesise, discover and learn.

Using elements of poetic inquiry in my research story has helped make my thinking clearer, fresher and more accessible, as well as having represented the richness and complexity of the observed nature phenomenon in early childhood settings. Generating research poems can be seen as some of the tools I've used in a repertoire of methods and methodology, to convey meaning, analyse data, explore in my own words and to theorise with and develop my own voice. As suggested by Cahnmann-Taylor (2009) using poetic inquiry has the potential for surprising the researcher with unexpected connections and understanding. Each of my poems can stand on its own, but as a cluster of poems they give a richer and deeper understanding of the nature phenomenon.

My research story builds on what has been done before and adds to it in fresh and creative ways. This fresh way of seeing requires the practice of noticing, whether in

everyday lived nature experiences in early childhood settings, or in the extensive and varied reading of the literature on nature play and natural settings. I have also noted the value of remembering past childhood memories and nature experiences. When we think about our experiences in nature as a child, we can feel what we felt then, with fondness and melancholy (Louv, 2011). We can also consciously reflect on those experiences and place value on them because they have helped determine who we have become. We can also appreciate things differently, and with more intention as we reconnect with an earlier time. Children however, are seeing and experiencing things with little past experience, so everything is seen as new and wonder-filled.

The special wonder-full qualities that nature-based settings have, link strongly to the principles, strands and goals of *Te Whāriki* the New Zealand early childhood curriculum framework (Ministry of Education, 1996). The term curriculum is defined in *Te Whāriki* as:

the sum total of the experiences, activities and events, whether direct or indirect, which occur within an environment designed to foster children's learning and development. These experiences, activities, and events may be based on forward planning or may evolve in response to a particular situation (Ministry of Education, 1996, p. 10).

The 'particular situation' of providing nature-based settings for children in early childhood education to engage in, relates to New Zealand's early childhood curriculum framework. There are in fact many links to the holistic and active learning approach of our New Zealand early childhood curriculum and the learning enhanced by the natural world. *Te Whāriki's* principles (Ministry of Education, 1996) reflect on how children, parents and teachers in 'particular situations or settings' have their own perspectives on learning. Within the context of the local places in nature that I observed children and adults, it was the opportunities to explore, play and discover collaboratively among local plants, animals and other natural elements that truly forged a connection for all the participants.

Dispositions to learn develop when children are immersed in an environment that is characterised by well-being and trust, belonging and purposeful activity, contributing and collaborating, communicating and representing, and exploring and guided participation (Ministry of Education, 1996, p. 45).

Sociocultural perspectives highlight these interconnected relationships between people, places and things, emphasising how nature-based settings provide a special place for children's play. Nature places and natural elements afford social participation that is conveyed as child-led and sustained shared play experiences. They also afford children opportunities to break away from normal play scenarios in early childhood settings. Nature-based settings offer children spontaneous play experiences to find their own way over adult authority and rigid programmes, choose their own child-led play over adult structured play and create their own play spaces over adult designed and fixed play spaces.

Implications

This research story has focused on the holistic play-based driven curriculum of early childhood rather than a wider educational context. Links can be made however to essential learning areas in schools, the growing trend of children's gardens in schools, Enviro-schools and education for sustainability. These links are relevant to the ways nature-based settings can make a positive contribution to children's learning, skills, attitudes and values.

By reconfiguring children and natures in all educational settings, the contribution that nature play has to make to learning, children's lives and environmental stewardship can be linked to the saying:

Teaching a child not to step on a caterpillar is as valuable to the child, as it is to the caterpillar (quote attributed to Bradley Miller, in Wilson, 2009, p. 40).

There is valuable knowledge and an ethic of care that young children learn from being

in the presence of nature, natural environments and other beings. Through a social constructivist perspective, children, teachers and others are engaged in a process of actively constructing knowledge through their interactions with time (frequency), space (freedom and familiarity), objects and other species (flora and fauna), and people (current and future stewards of the natural world).

The current nature phenomenon challenges early childhood services to be open to new perspectives and create diverse services and teaching practices within the sector. New or renewed traditions, influences and theoretical perspectives, the evidence from this research story and others, may provide the motivation or added focus for action. Children's enjoyment in engaging with natural environments has been made evident in this research story, but also how exploration and discovery of nature plays a significant part in children's play. Nature play narratives describe how play scenarios are often held up while a group of interested young explorers are drawn to and research other living things (or dead things in the case of the possum, and butterfly). Discoveries were often child-led with children being fascinated with the natural world.

Natural environments provide open-ended opportunities for children to exercise choice, challenge, imagination and fantasy. Nature offers unparalleled opportunities for direct sensory exploration and experimentation. The open-ended characteristics of the natural world excite play, inventiveness and creativity with an endless array of loose parts and variables. With this idea of open-ended opportunities, my research story is also open-ended. My research has been presented as a story with many layers and a story worth telling because it offers more than merely 'someone else's story'.

Descriptions through words and imagery of what play in nature-based early childhood settings looks like can shed light in dark places, like pathways through the trees. These pathways can lead to a look at emergent environmental education for early childhood. Shedding light in places and adding to the call for action to ensure '*fun*', '*friendship*' and '*future stewardship*' of the Earth (three more 'F' words) creates something new and regenerative that suggests that my story is in fact never ending...

References

- Albon, D. & Rosen, R. (2014). *Negotiating adult-child relationships in early childhood research*. Oxon: Routledge.
- Beach, B. (2003). Rural children's play in the natural environment. In D. Lytle (Ed.), *Play and educational theory and practice: Play & culture studies*, (5). CT: Praeger.
- Bergey, B. W. (2013). Three times blind: The wandering, wondering path to asking the right question. In E. Horvat (Ed.), *The beginners guide to doing qualitative research: How to get into the field, collect data and write up your project* (pp. 127-151). New York, NY: Teachers College Press.
- Bilton, H. (2002). *Outdoor play in the early years: management and innovation*. London, UK: David Fulton Publishing.
- Blanchet-Cohen, N. & Elliot, E. (2011). Young children and educators engagement and learning outdoors: A basis for rights-based programming. *Early Education and Development*, 22(5), 757-777. doi:10.1080/10409289.2011.596460
- Bohling, V., Saarela, C. & Miller, D. (2010). *This never would have happened indoors: Supporting preschool-age children's learning in a nature explore classroom in Minnesota*. Dimensions Educational Research Foundation.
- Bornholdt, J., O'Brien, G., & Williams, M. (Eds.). (1997). *An anthology of New Zealand Poetry*. Auckland, New Zealand: University Press.
- Bratman, G. N., Hamilton, J. P., & Daily, G. C. (2012). The Impacts of nature experience on human cognitive function and mental health. *Annals of the New York Academy of Sciences: The Year in Ecology and Conservation Biology*, 1249, 118-136. doi:10.1111/j.1749-6632.2011.06400.x

- Brown, S. & Vaughan, C. (2009). *Play, how it shapes the brain, opens the imagination, and invigorates the soul*. New York, NY: Penguin Group.
- Bruce, T. (Ed.) (2004). *Developing learning in early childhood. The 0-8 series*. London, UK: Paul Chapman Publishing.
- Bruner, J. S. (1983). *Child's talk: learning to use language*. New York, NY: Norton.
- Buchbinder, M., Longhofer, J., Barrett, T., Lawson, P., & Floersch, J. (2006). Ethnographic approaches to childcare research: A review of the literature. *Journal of Early Childhood Research*, 4(1), 45-63.
doi: 10.1177/1476718X06059789
- Campbell, D. & Thompson, S. (2013). Naturally speaking: Parents, children, teachers in dialogue with nature. In D. Meier & S. Sisk-Hilton (Eds.) *Nature education with young children: Integrating inquiry and practice* (pp. 105-122). New York, NY: Routledge.
- Chalufour, I., & Worth, K. (2003). *Discovering nature with young children*. St. Paul, MN: Redleaf Press.
- Chawla, L. (1998). Research methods to investigate significant life experiences: Review and recommendations. *Environmental Education Research*, 4(4), 383-397.
- Chawla, L. (2002). (Ed.) *Growing up in an urbanizing world*. London, England: Earthscan.
- Chawla, L. (1990). Ecstatic Places. *Children's Environments Quarterly*, 7(4), 18-23.
- Chawla, L. (1999). Life paths into effective environmental action. *The Journal Of Environmental Education*, 31, 15-26.

- Chawla, L. (2002). Spots of time: manifold ways of being in nature in childhood. In P. Kahn, Jr & S. Kellert (Eds.), *Children and nature: Psychological, Sociocultural, and evolutionary investigations* (pp. 199-225). Cambridge, MA: MIT Press.
- Chawla, L. (2006). Learning to love the natural world enough to protect it. *Barn*, 2, 57-78.
- Chipeniuk, R. (1995). Childhood foraging as a means of acquiring competent human cognition about biodiversity. *Environment and Behavior*, 27(4), 490-512.
- Christensen, P. & James, A. (Eds.) (2008). *Research with children: perspectives and practices* (2nd ed.). Oxon: Routledge.
- Cobb, E. (1977). *The ecology of imagination in childhood*. New York, NY: Columbia University Press.
- Cornell, E. H. & Hill, K. A. (2006). The problem of lost children. In C. Spencer & M. Blades (Eds.), *Children and their environments: Learning, using and designing spaces* (pp. 26-41). Cambridge, UK: Cambridge University Press.
- Cross, A. (2012). *Nature sparks: Connecting children's learning to the natural world*. St. Paul, MN: Redleaf Press.
- Davis, J. M. (2010). (Ed.) *Young children and the environment: Early education for sustainability*. Port Melbourne, Vic, Australia: Cambridge University Press.

- Derr, T. (2006). 'Sometimes birds sound like fish': Perspectives on children's place experiences. In C. Spencer & M. Blades (Eds.), *Children and their environments: Learning, using and designing spaces* (pp. 108-123). Cambridge, UK: Cambridge University Press.
- Dewey, J. (1938). *Experience and education*. New York, NY: Collier Books.
- Dowdell, K., Gray, T. & Malone, K. (2011). Nature and its influence on children's outdoor play. *Australian Journal of Outdoor Education*, 15(2), 24-35.
- Elkind, D. (2007). *The power of play: How spontaneous, imaginative activities lead to happier, healthier children*. Cambridge, MA: DaCapo Press.
- Elliott, S. (Ed.). (2008). *The outdoor playspace – naturally – for children birth to five years*. Castle Hill, NSW, Australia: Pademelon Press.
- Elliott, S. & Davis, J. (2004). *Mud pies and daisy chains: Connecting young children and nature*. *Every Child*, 10(4), 4-5.
- Elliott, S. & Davis, J. (2008). Introduction. Why outdoor playspaces? In S. Elliott (Ed.), *The outdoor playspace – naturally – for children birth to five years* (pp. 1-14). Castle Hill, NSW, Australia: Pademelon Press.
- Faber Taylor, A. & Kuo, F. E. (2006). Is contact with nature important for healthy child development? State of the evidence. In C. Spencer & M. Blades (Eds.), *Children and their environments: Learning, using and designing spaces* (pp. 124-140). New York, NY: Cambridge University Press.
- Faber Taylor, A., Wiley, A., Kuo, F. E. & Sullivan, W. C. (1998). Growing up in the inner city: Green spaces as places to grow. *Environment and Behavior*, 30, 3-27.

- Faber Taylor, A., Kuo, F. E. & Sullivan, W. C. (2001). Coping with ADD: The surprising connection to green play settings. *Environment and behavior*, 33 (1), 54-77.
- Faber Taylor, A., Kuo, F. E. & Sullivan, W. C. (2002). Views of nature and self-Discipline: Evidence from inner-city children. *Journal of environmental Psychology*, 22, 49-63.
- Fjortoft, I. (2001). The natural environment as a playground for children: The impact of play activities in pre-primary school children. *Early Childhood Education Journal*, 29(2), 111-117.
- Fjortoft, I. (2004). *Landscape as playscape: The effects of natural environments on children's play and motor development*. *Children, Youth and Environments*, 14(2), 21-44.
- Fjortoft, I. & Sageie, J. (2000). The natural environment as a playground for children: Landscape description and analyses of a natural playscape. *Landscape and urban planning*, 48, 83-97.
- Garrick, R. (2009). *Playing outdoors in the early years* (2nd ed.). London, England: Continuum International Publishing Group.
- Gibson, J. (1979). *The ecological approach to visual perception*. Boston, MA: Houghton Mifflin.
- Gill, T. (2005). *Let our children roam free*. *The Ecologist*.
Retrieved from: www.theecologist.org/archive_detail.asp?content_id=481

- Gill, T. (2007). *No fear: Growing up in a risk averse society*. London, UK: Calouste Gulbenkian Society.
- Gill, T. (2011). *Children and nature: A quasi-systematic review of the empirical evidence*. London Sustainable Development Commission.
- Gill, T. (2014). The benefits of children's engagement with nature: A systematic literature review. *Children, Youth and Environments*, 24(2), 10-34.
- Grahn, P., Martensson, F., Lindblad, B., Nilsson, P. and Ekman, A. (1997). Outdoors at daycare. *City and Country*, 145. Hasselholm, Sweden: Norra Skane Offset.City.
- Graue, M. E. & Walsh, D. J. (1998). *Studying children in context: Theories, methods, and ethics*. CA: Sage.
- Gravett, M. (2013). Putting the forest on the map: Using documentation to further natural inquiry. In D. Meier & S. Sisk-Hilton (Eds.), *Nature education with young children: Integrating inquiry and practice* (pp.137-152). New York, NY: Routledge.
- Harcourt, P., Waller, T. & Perry, B. (2011). (Eds.) *Young children's perspectives: Ethics, theory and research*. London, England: Routledge
- Hart, R. (1979). *Children's experience of place*. New York: Knopf.
- Higgins, N. & Freeman, C. (Eds.) (2013). *Childhoods: Growing up in Aotearoa New Zealand*. Wellington, New Zealand: Otago University Press.
- Horne, L. (2010). *Nature in play: Measuring the relationship of nature and unstructured play through case studies*. Saarbrücken, Germany: LAP LAMBERT.

- Hutchby, I. & Moran-Ellis, J. (Eds.) (2001). *Children, technology and culture: The impacts of technologies in children's everyday lives*. London, England: RoutledgeFalmer.
- Hyun, E. (2005). How is young children's intellectual culture of perceiving nature different from adults? *Environmental Education Research*, 11(2), 199-214.
- Hyvonen, P. & Kangas, M. (2007). From bogey mountains to funny houses: children's desires for play environment. *Australian Journal of Early Childhood*. 32(3), 39-47.
- Islam, Y. (1970). *Where do the children play?* Song lyrics released 1970.
- Jayewardene, G. (2013). Overcoming our fears: Embarking on a nature journey. In D. Meier & S. Sisk-Hilton (Eds.), *Nature education with young children: Integrating inquiry and practice* (pp. 83-101). New York, NY: Routledge.
- Joyce, R. (2012). *Outdoor learning: Past and present*. Berkshire, England: Open University Press.
- Judson, G. (2010). *A new approach to ecological education: Engaging students' imaginations in their world*. New York, NY: Peter Lang Publishing.
- Kahn, P. H. (1999). *The human relationship with nature*. Cambridge, MA: MIT Press.
- Kahn, P. H. Jr, & Kellert, S. R. (Eds.). (2002). *Children and nature: Psychology, sociocultural and evolutionary investigations*. Cambridge, MA: MIT Press.
- Kaplan, S. (1995). The restorative benefits of nature: toward an integrative framework. *Journal of environmental psychology*, 15, 169-182.

- Kaplan, R. & Kaplan, S. (1989). *The experience of nature: A psychological perspective*. New York, NY: Praeger.
- Keeler, R. (2008). *Natural playscapes: Creating outdoor play environments for the soul*. Redmond, WA: Exchange Press.
- Kellert, S. R. (1997). *Kinship to mastery: Biophilia in human evolution and development*. Washington, DC: Island Press.
- Kellert, S. R. (2002). Experiencing nature: affective, cognitive, and evaluative development in children. In P. Kahn & S. Kellert (Eds.). *Children and nature: Psychological, sociocultural, and evolutionary investigations* (pp. 117-152). Cambridge, MA: MIT Press.
- Kellert, S. R. & Derr, V. (1998). *A national study of outdoor wilderness experience*. Washington, DC: Island Press.
- Kellert, S. R. (2005). *Building for life: Designing and understanding the human-nature connection*. Washington: Island Press.
- Kellert, S. R. & Wilson, E. O. (1993). *The biophilia hypothesis*. Washington DC: Island Press.
- Kelly, J. & White, E. J. (2013). *The ngahere project: Teaching and learning possibilities in nature settings*. Hamilton, New Zealand: Wilf Malcom Institute of Educational Research.
- Knight, S. (2009). *Forest schools and outdoor learning in the early years*. London, England: Sage.
- Knight, S. (2011). *Risk and adventure in early years outdoor play: Learning from forest schools*. London, England: Sage.

- Knight, S. (Ed) (2013). *International perspectives on forest school: Natural spaces to play and learn*. London, England: Sage.
- Kong, L. (2000). Nature's dangers, nature's pleasures: urban children and the natural world. In S. Holloway & G. Valentine (Eds.), *Children's geographies: Playing, living, learning* (pp. 257-271). London, England: Routledge.
- Knight, S. (2009). *Forest schools and outdoor learning in the early years*. London, England: SAGE.
- Kuo, F. E. & Faber Taylor, A. (2004). *A potential natural treatment for AD/HD? Evidence from a national study*. *American Journal of Public Health*, 94 (9), 1580-1586.
- Kyttä, M. (2002). Affordances of children's environments in the context of cities, small towns, suburbs and rural villages in Finland and Belarus. *Journal of Environmental Psychology*, 22, 109-123.
- Kyttä, M. (2004). The extent of children's independent mobility and the number of actualized affordances as criteria of a child-friendly environment. *Journal of environmental psychology*, 24, 179-198.
- Kyttä, M. (2006). Environmental child-friendliness in the light of the Bullerby Model. In C. Spencer, & M. Blade (Eds.), *Children and their environments* (pp. 141-158). Cambridge, UK: Cambridge University Press.
- Lester, S. & Maudsley, M. (2007). *Play, naturally: A review of children's natural play*. Los Angeles, CA: National Children's Bureau Enterprises.
- Louv, R. (2005). *Last child in the woods: Saving our children from nature deficit disorder*. Chapel Hill, NC: Algonquin Books.

- Louv, R. (2008). (2nd ed.). *Last child in the woods: Saving our children from nature deficit disorder*. Chapel Hill, NC: Algonquin Books.
- Louv, R. (2011). *The nature principle: Human restoration and the end of nature-deficit disorder*. Chapel Hill, NC: Algonquin Books.
- Maley-Shaw, C. (2013). *Nature discovery: a research project on the effects on the holistic development and wellbeing of children being in nature on a regular basis in a New Zealand context*. Invercargill, New Zealand: Southland Kindergarten Association.
- Malone, K. & Tranter, P. J. (2003). School grounds as sites for learning. *Environmental Education Research*, 9, 283-303.
- Maxwell, L. E., Mitchell, M. R. & Evans, G. W. (2008). Effects of play equipment and loose parts on preschool children's outdoor play behavior: An observational study and design intervention. *Children, Youth and Environment*, 18(2), 36-63.
- Meier, D. R. & Sisk-Hilton, S. (Eds.). (2013). *Nature education with young children: Integrating inquiry and practice*. New York, NY: Routledge.
- Melson, G. F. (2005). *Why the wild things are: Animals in the lives of children*. Cambridge, MA: Harvard University Press.
- Miller, J. R. (2005). Trends in ecology and evolution. *Biodiversity conservation and the extinction of experience*, (20), 430-434.
- Miller, D. L., Tichota, K. & White, J. (2009). *Young children learn through authentic play in a nature explore classroom*. Lincoln, NE: Dimensions Education Research Foundation.
- Accessed from: www.dimensionsfoundation.org/research/authenticplay.pdf

- Ministry of Education. (1996). *Te Whāriki: He Whāriki Mātauranga mō ngā Mokopuna o Aotearoa. Early Childhood Curriculum*. Wellington, New Zealand: Learning Media.
- Moeran, B. (2005). *Business of ethnography: Strategic exchanges, people and organization*. Oxford, UK: Berg Publishers.
- Moore, R. C. (1986). *Childhood's domain: Play and place in child development*. London, UK: Croom Helm.
- Moore, (1989). Plants as play props. *Children's Environment Quarterly*, 6(1), 3-6.
- Moore, R. C., & Wong, H. H. (1997). *Natural learning: Rediscovering nature's way of teaching*. Berkeley, CA: MIG Communications.
- Muñoz, S-A. (2008). *Children in the outdoors: A literature review*. Sustainable Development Research Centre, Horizon, Scotland. Retrieved from: <http://www.abdn.ac.uk/crh/uploads/files/Children%20in%20the%20Outdoors%20A%20liteature%20review%20%20Munoz%20S.pdf>
- Nabhan, G. P. & Trimble, S. (1994). *The geography of childhood: Why children need wild places*. Boston, MA: Beacon Press.
- Nicholson, S. (1971). How not to cheat children: The theory of loose parts. *Landscape Architecture*, 61, 30-34.
- Orr, D. W. (2002). Political economy and the ecology of childhood. In P. Kahn & S. Kellert (Eds.), *Children and nature: Psychological, sociocultural, and Evolutionary investigations* (pp. 279-303). Cambridge, MA: MIT Press.
- Paley, G. V. (2004). *A child's work: The importance of fantasy play*. Chicago, IL: The University of Chicago Press.

- Paley, V. (1981). *Wally's stories*. Cambridge, MA: Harvard University Press.
- Palmer, J. (1993). Development of concern for the environment and formative experiences of educators. *Journal of Environmental Education*, 24, 26-30.
- Palmer, J. A., Suggate, J., Bajd, B. & Tsaliki, E. (1998). Significant influences on the Development of adults' environmental awareness in the UK, Slovenia, and Greece. *Environmental Education Research*, 4(4), 429-444.
- Pound, L. (2011). *How children learn: Contemporary thinking and theories* (Book 3). Invercargill, New Zealand: Essential Resources Educational Publishers.
- Punch, K. & Oancea, A. (2014). *Introduction to research methods in education* (2nd ed.). London, UK: SAGE.
- Pyle, R. M. (1993). *The thunder tree: Lessons from an urban wildland*. Boston: Houghton Mifflin Company.
- Pyle, R. M. (2002). Eden in a vacant lot: special places, species, and kids in the neighborhood of life. In P. Kahn Jr. & S. Kellert (Eds.), *Children and nature. Psychological, sociocultural, and evolutionary investigations* (pp. 305-328). Cambridge, MA: MIT Press.
- Pyle, R. M. (2011). *The thunder tree: Lessons from an urban wildland*. Corvallis, OR: Oregon State University Press.
- Rissotto, A. & Giuliani, M. V. (2006). Learning neighbourhood environments: the loss of experience in a modern world. In C. Spencer & M. Blades (Eds.), *Children and their environments: Learning, using and designing spaces* (pp. 75-90). Cambridge, UK: Cambridge University Press.

- Rivkin, M. S. (1995). *The great outdoors: Restoring children's right to play outside*. Washington, DC: National Association for the Education of Children.
- Saracho, O. N. & Spodek, B. (Eds). (2003). *Contemporary perspectives on play in early childhood education*. CT: Information Age.
- Sebba, R. (1991). The landscapes of childhood: the reflections of childhood's environment in adult memories and in children's attitudes. *Environment and behaviour*, 23, 395-422.
- Smith, A. (2013). A theoretical framework for childhood. In N. Higgins & C. Freeman (Eds.), *Childhoods: Growing up in Aotearoa New Zealand* (pp. 29-43). Wellington, New Zealand: Otago University Press.
- Smith, A. B. (2011) Respecting children's rights and agency: Theoretical insights into ethical research procedures. In D. Harcourt & T. Waller (Eds.), *Young children's perspectives: Ethics, theory and research* (pp. 11-25). London, UK: Routledge. In Harcourt et al (2011)
- Sobel, D. (1993). *Children's special places: Exploring the role of forts, dens and bush houses in middle childhood*. Detroit, MI: Wayne State University Press.
- Sobel, D. (1998). *Beyond ecophobia: Reclaiming the heart in nature education*. Great Barrington, MA: Orion Society.
- Sobel, D. (2008). *Childhood and nature: Design principles for educators*. Portland, ME: Stenhouse.
- Soper, K. (1995). *What is nature? Culture, politics and the non-human*. Oxford, London: Blackwell.

- Spencer, C. & Blades, M. (Eds.). (2006). *Children and their environments: Learning, using and designing spaces*. Cambridge, UK: Cambridge University Press.
- Stephens, E. (2007). *Designing for preschoolers: The engagement of natural spaces for play*. White paper. Faculty of Landscape Architecture, State University of New York, College of Environmental Science and Forestry. Retrieved from: http://www.esf.edu/la/capstones/2007/Stephens_Eleanor_07/Stephens_report_07.pdf
- Stephenson, A. (2002). Opening up the outdoors: Exploring the relationship between the indoor and outdoor environments of a centre. *European early childhood education research journal*, 10(1), 29-38.
- Stephenson, A. (2003). Physical risk-taking: Dangerous or endangered? *Early Years*, 23(1), 35-43.
- Stinson, S. (2005). Why are we doing this? *Journal of Dance Education*, 5(3), 82-89.
- Sward, L. (1999). Significant life experiences affecting the environmental sensitivity of El Salvadoran environmental professionals. *Environmental education research*, 5(2), 201-206.
- Tanner, T. (1980). *Significant life experiences: A new research area in environmental education*. *The Journal of Environmental Education*, 11(4), 20-24.
- Tanner, T. (Ed.). (1998). Special issue on significant life experience research. *Environmental Education Research* 4.

- Taverna, J. (2008). *How to speak for the speechless: Discourses of nature and environmental policy*. Presentation at American political science association annual meeting, August 28-31, 2008. Boston, MA. Retrieved from: http://www.allacademic.com//meta/p_mla_apa_research_citation/2/7/8/1/6/pages278164-1.php
- Taylor, A. (2013). *Reconfiguring the natures of childhood*. Oxon: Routledge.
- Titman, W. (1994). *Special places, special people: The hidden curriculum of school grounds*. Surrey, UK: WWF UK/Learning Through Landscapes.
- Tovey, H. (2007). *Playing Outdoors: Spaces and Places, Risk and Challenge*. Berkshire, England: Open University Press.
- Vygotsky, L. S. (1978). *Mind in society: The development of higher mental processes*. Cambridge, MA: Harvard University Press.
- Wake, S. J. (2007). Designed for learning: Applying “learning-informed design” for children’s gardens. *Applied environmental education & communication*, 6(1), 31-38.
- Warden, C. (2010). *Nature kindergartens: An exploration on naturalistic learning within nature kindergartens and forest schools*. Perthshire: Mindstretchers.
- Wells, N. (2000). At home with nature: Effects of “greenness” on children’s cognitive functioning. *Environment and Behavior*, 32(6), 775-795.
- Wells, N. M. & Evans, G. W. (2003). Nearby nature: A buffer of life stress among rural children. *Environment and Behavior*, 35(3), 311-330.

- Wells, N. M., & Lekies, K. S. (2006). Children, Youth and Environments. *Nature and the life course: Pathways from childhood nature experiences to adult environmentalism*, 16, 1-24.
- White, J. (2014). *Playing and learning outdoors: Making provision for high quality experiences in the outdoor environment with children 3-7*. Abingdon, Oxon: Routledge.
- Wilson, E. O. (1984). *Biophilia*. Cambridge, MA: Harvard University Press.
- Wilson, E. O. (1993). Biophilia and the conversation ethic. In S. Kellert & E. Wilson (Eds.), *The Biophilia Hypothesis*. Washington DC: Island Press.
- Wilson, R. A. (2009). Peace education: the color green – a ‘go’ for peace education. *Exchange*, 31(3), 40-43. Redmond, Washington: Exchange Press.
- Woodhead, M. & Faulkner, D. (2008). Subjects, objects or participants? Dilemmas of psychological research with children. In P. Christensen & A. James (Eds.), *Research with children: Perspectives and practices* (2nd ed., pp. ???). Oxon: Routledge.
- Zaradic, P. A., & Pergams, O. R. W. (2007). Journal of Developmental Processes. *Videophilia: Implications for childhood development and conservation*, 2, 130-144.

Appendix 1

Sample transcript

<p>On Top of the World (18-2-14 PM)</p>		
<p>Description</p>	<p>Interpretation</p>	<p>Concepts/Themes</p>
<p>Teachers: Sally and Julia Children: Eden, Albie, Lucy, Anthony, Mary, Bella, James, Lily, Georgia and Kurt</p>		
<p>On arrival at the natural setting the children release holding hands and run to the wooden steps – except for three girls who walk holding hands. I hear one of them say, “Let’s walk!”</p>	<p>Freedom – but for some children it is expressed as something to be enjoyed slowly!</p>	<p>Frequency Freedom</p>
<p>At the wooden steps some children choose to climb up and over the steps, while others climb the wooden farm fence close to where the fence separating the ‘pony paddock’ from the next paddock is.</p>	<p>Independent choices</p>	<p>Familiarity Freedom</p>
<p>Once over the fence the children race up the hill to the ‘Lion’s Meadow’ – they climb the wire fence into the meadow of long grass, tall trees and scattered rocks. Teacher Julia has the book ‘The Lion in the Meadow’ in her backpack, which she reads to the children as they sit and listen in the long grass.</p>	<p>Running – sense of anticipation in reaching the ‘Meadow’ of long grass</p>	<p>Freedom</p>
<p>I am curious as to why this section of the paddock is fenced off and is the only space with long grass. I will endeavor to find out – I notice some young native trees planted in this area (perhaps this is why it has been left?)</p>	<p>Story telling provokes children’s imagination and play</p>	<p>Familiarity Fresh eyes (Researcher)</p>
<p>After the story telling the children explore the meadow independently eventually climbing the fence back into the ‘pony paddock’.</p>	<p>Singing – expressing joy</p>	<p>Familiarity (Sense of place)</p>
<p>I notice Mary singing and ask the name of the song, <i>Mary</i> – “That’s the Ariel song – when Ariel (The Mermaid) gives her voice away”</p>	<p>Feeling the wind – expressing herself using her body</p>	<p>Fun (Well-being)</p>
<p>Lily is also singing and holds her hands up beside her head as she sings (as if she is feeling the wind in her hands).</p>	<p>Exploring cowpats – curiosity</p>	<p>Affordance Sensory</p>
<p>Georgia stands in a cowpat with one foot and gets a little cow pooh on her sandals – “I didn’t know it would be soft”</p>	<p>Cowpat stomping</p>	<p>Flora and Fauna (Natural elements)</p>
<p>She stands in another cowpat lighter in colour and realises it is lighter in colour because it is drier compared to the first one.</p>	<p>Enjoyment</p>	<p>162</p>

<p>Page 2</p> <p>Bella joins in cowpat stomping (she is wearing gumboots). <i>Georgia</i> – “Stomp in it” <i>Bella</i> – “We’ll have to tell the others we were standing in cow poohs”</p> <p>We head slowly towards the others in the group who have found a large arched branch. Lily decides it is a Daddy dinosaur bone and she instructs the group to put it down and go in search of Daddy Dinosaur. A group of four children, led by Anthony continue to carry the branch together until they decide they have carried it far enough.</p> <p>Bella and Georgia choose to climb a tree – they are able to get up the trunk themselves and play in the v of the large branches.</p> <p>I stay nearby as both girls feel unsure about getting down by themselves when they look at the possible locations for descending</p> <p>I offer to give assistance in climbing down if they need it and Georgia announces – “We want to be alone”. I move away from the tree so that the girls feel they are more alone. I hear them having a conversation along the lines of “Friends always help each other”, and then I notice that both girls have helped each other climb and jump out of the tree at the same point they climbed up.</p> <p>We walk together to the water fountain where the rest of the group has waited for us to join them.</p> <p>Bella and Georgia pick up sticks with brush like structures on the end.</p> <p><i>Bella</i> – “Mops” (Bella and Georgia pretend to mop the grass) <i>Bella</i> – “Let’s show the other kids” Bella sings as she carries her branch. Georgia starts singing too – “Do, Do, Do, Do do, Da da” – and Bella joins in with the same song. Georgia drops her branch and Bella continues to hold on to hers. Bella and Georgia rejoin the group at the park entrance.</p>	<p>Imagination – creative thinking</p> <p>Working collaboratively</p> <p>Tree climbing independently</p> <p>Self risk assessment to get down tree</p> <p>Wanting to be alone up a tree (2 girls)</p> <p>Friendship</p> <p>Unhurried play</p> <p>Sticks – brushes</p> <p>Imaginative play</p> <p>More singing and playing with language</p>	<p>Exploration</p> <p>Gleeful play</p> <p>Freedom</p> <p>Familiarity (Sense of place)</p> <p>Free choice</p> <p>Affordance of nature</p> <p>Exploration</p> <p>Time and space</p> <p>Loose parts (Play props)</p> <p>Open-ended possibilities</p> <p>Collecting loose parts - flora</p>
---	--	---

Appendix 2

Strands of *Te Whāriki* (Ministry of Education, 1996)

Each strand embodies an area of learning and development that is woven into the early childhood setting

The following table shows strong links to nature-based settings:

Well-being Mana Atua	Belonging Mana Whenua	Contribution Mana Tangata	Communication Mana Reo	Exploration Mana Aotūroa
Children experience an environment where their health is promoted	A respect for Papatuanuku (Earth Mother) should be promoted	Children's development occurs through active participation in activities	Children experience an environment where they develop verbal and non-verbal communication skills for a range of purposes	A knowledge of features of the land which are of local significance, such as the local river or mountain
Adults should acknowledge spiritual dimensions and have a concern for how the past, present, and future influence children's self-esteem	Children should know that what they do can make a difference	Empowering children to find out what they want to know and to understand their own ways of learning and being creative	Children discover and develop different ways to be creative and expressive	Children experience an environment where their play is valued as meaningful learning and the importance of spontaneous play is recognised
Children develop an increasing ability to determine their own actions and make their own choices	Children can explore and try out new activities Children know they have a place	The balance between communal, small group, and individual activities should allow opportunities for interaction, cooperative activities and privacy	Children develop language skills in real, play, and problem-solving contexts	Children develop working theories for making sense of the natural, social, physical, and material worlds

Appendix 3



THE UNIVERSITY OF AUCKLAND
NEW ZEALAND

School of Critical Studies
Faculty of Education
Epsom Campus
Ph: 623 8899
The University of Auckland
Private Bag 92601
Auckland, New Zealand

PARTICIPANT INFORMATION SHEET (Centre Owner/Kindergarten Association)

Project title: An investigation of nature play in natural outdoor early childhood settings.

Name of Researcher: Lucinda Murch

Researcher introduction

I am a Masters of Education postgraduate student in the School of Critical Studies in Education, at the University of Auckland. My educational background is in Early Childhood Education having worked for the Auckland Kindergarten Association following my teacher training in 1994, and then opening my own Early Childhood Centre in 1997. I was founder, owner, licensee and teacher at Farm Friends Early Childhood Centre for 16 years, between 1997 and 2012. I have now returned to relieving work with the Auckland Kindergarten Association as I continue with my Masters studies.

My research focus is linked to my passion for providing quality early childhood settings for young children, with an interest in “nature-based” play and learning and a curiosity to know more about this current trend in early childhood education. Two or three generations ago, it wasn’t necessary to plan for natural playscapes for children – particularly in New Zealand where most children lived close to fields, recreational parks or forests, or knew family members or friends that owned farms, but today, most children no longer encounter the same outdoor play experiences.

I wish to critically research the idea that outdoor play is an important feature of education and care for young children in New Zealand, and optimally that of an outdoor environment where children can engage in a natural playscape with natural materials and naturally occurring play activities in a deep and direct manner.

Project description and invitation

The aim of this project is to investigate the current phenomenon of ‘nature-based’ play and learning in New Zealand early childhood settings in order to:

- (a) Describe what nature play “looks like” for children in a natural setting
- (b) Observe and record children’s engagement with nature and natural materials, in a nature-based environment
- (c) Analyse the play scenarios observed in these natural settings and explore the influences on play and learning that these natural environments afford young children.

Your early childhood centre/kindergarten has given tentative permission to participate in this study. There are current international case studies in Australia and America that document and analyse childhood interactions with nature and how this interaction is changing and with your support it is my intent to gather further qualitative data that documents nature play for young children in a New Zealand early childhood setting.

Project Procedures

Childhood today is more connected to particular settings such as early childhood centres and schools, therefore it is in the location of an early childhood setting that provides a natural environment or regular excursions to a natural environment, that I wish to gather the data documenting children’s nature-based play.

I would collect the data using an audio-recording device or as handwritten field notes and photographs, as children and possibly adults too engage naturally in their play and explore the naturalness of the surroundings through authentic nature play sequences and interactions.

I would be a ‘participant observer’ within the study, as it is likely that interactions and involvement will occur between the children I will be observing and myself during their play sequences. Play sequences and therefore observations, may also involve other adults who co-exist and interact with the children in this social context.

Observations would occur over several months to allow myself as researcher, to become part of the regular nature play routines; feel part of the environment being researched; and limit my presence as being considered an ‘outsider’ by the participants. Recorded observations would include 30-40 minute broad observations of what is seen happening in the setting, and then shorter observations (10 minutes) focusing on the engagement and interactions in particular play scenarios of individual children and small groups.

Your rights

Participating in this study is entirely voluntary. As centre owner /kindergarten association representative, you can agree to withdraw the centre/kindergarten from the project at any time without explanation.

Your centre/kindergarten name and details will remain confidential and records will remain confidential and secure for six years. In any publication of this research, your identity will not be revealed.

Your centre/kindergarten will be able to request the edited audio recordings, the edited written field notes, and any photographs that may be used for future presentations and publications.

You centre/kindergarten will hold a copy of the final version of this study in pdf format.

Data care and use

While data is being gathered for the project, it will be stored electronically, on an external hard-drive and or locked in a secure drawer. It will remain this way for six years until paper data will be shredded and electronic data wiped from the external hard drive. The only people who will have access to the data gathered from your centre before they are published will be myself, and my research supervisor.

The data gathered in this study will be written up in my research thesis and may also be presented at academic conferences, presentations and written up in future articles or publications.

Contact Details

If you have any queries or wish to know more please feel free to contact me. My details are:

Name: Lucinda Murch

Email: gmurch@clear.net.nz

Address: 291 Boord Crescent, RD1 Kumeu, Auckland 0891

Phone: (09) 412-8829 Cellphone: 027 2857484

My Supervisor is: Dr Carol Mutch, School of Critical Studies in Education, Faculty of Education, University of Auckland, Private Bag 92019, Auckland.

Work phone: (09) 623 8899 Ext 48257. Her email is: c.mutch@auckland.ac.nz

My Head of School is: Dr Airini, School of Critical Studies in Education, Faculty of Education, University of Auckland, Private Bag 92019, Auckland, Phone: 623 8899 Ext 48826. Her email is: airini@auckland.ac.nz

Yours sincerely

For any concerns regarding ethical issues, you can contact the Chair, The University of Auckland Human Participants Ethics Committee, The University of Auckland, Research Office, Private Bag 92019, Auckland 1142.

Telephone: 09 373-7599 extn. 87830/83761.

Email: humanethics@auckland.ac.nz

APPROVED BY THE UNIVERSITY OF AUCKLAND HUMAN PARTICIPANTS
ETHICS COMMITTEE ON 22/6/13 FOR (3) YEARS
REFERENCE NUMBER 9643

Appendix 3



THE UNIVERSITY OF AUCKLAND
NEW ZEALAND

School of Critical Studies
Faculty of Education
Epsom Campus
Ph: 623 8899
The University of Auckland
Private Bag 92601
Auckland, New Zealand

PARTICIPANT INFORMATION SHEET (Parent/Carer of participating child)

Project title: An investigation of nature play in natural outdoor early childhood settings.

Name of Researcher: Lucinda Murch

Researcher introduction

I am a Masters of Education postgraduate student in the School of Critical Studies in Education, at the University of Auckland. My educational background is in Early Childhood Education having worked for the Auckland Kindergarten Association following my teacher training in 1994, and then opening my own Early Childhood Centre in 1997. I was founder, owner, licensee and teacher at Farm Friends Early Childhood Centre for 16 years, between 1997 and 2012. I have now returned to relieving work with the Auckland Kindergarten Association as I continue with my Masters studies.

My research focus is linked to my passion for providing quality early childhood settings for young children, with an interest in “nature-based” play and learning and a curiosity to know more about this current trend in early childhood education. Two or three generations ago, it wasn’t necessary to plan for natural playscapes for children – particularly in New Zealand where most children lived close to fields, recreational parks or forests, or knew family members or friends that owned farms; but today, most children no longer encounter the same outdoor play experiences.

I wish to critically research the idea that outdoor play is an important feature of education and care for young children in New Zealand, and optimally that of an outdoor environment where children can engage in a natural playscape with natural materials and naturally occurring play activities in a deep and direct manner.

Project description and invitation

The aim of this project is to investigate the current phenomenon of ‘nature-based’ play and learning in New Zealand early childhood settings in order to:

- (d) Describe what nature play “looks like” for children in a natural setting
- (e) Observe and record children’s engagement with nature and natural materials, in a nature-based environment
- (f) Analyse the play scenarios observed in these natural settings and explore the influences on play and learning that these natural environments afford young children.

Your child is being asked to participate in this study, as groups of children from your child’s early childhood centre/kindergarten are observed as they engage in regular nature-based play. Play scenarios, play activities and children’s interactions will be recorded by an audio-recording device or as handwritten field notes as children engage naturally in their play and explore the outdoor natural environments. There are current international case studies in Australia and America that document and analyse childhood interactions with nature and how this interaction is changing and it is my intent to gather further qualitative data that documents nature play for young children in a New Zealand context.

Project procedures

Childhood today is more connected to particular settings such as early childhood centres and schools, therefore it is in the location of an early childhood setting that provides a natural environment or regular excursions to a natural environment, that I wish to gather the data documenting children’s nature-based play. I would collect the data within the naturalness of the surroundings, as authentic nature play scenarios and interactions occur.

I would be a ‘participant observer’ within the study, as it is likely that interactions will occur between the children I will be observing and myself; and that children may also invite my inclusion into play scenarios. Observations would occur over several months to allow myself as researcher, to become part of the regular nature play routines; feel part of the environment being researched; and limit my presence as being considered an ‘outsider’ by the participants. Recorded observations would include 30-40 minute broad observations of what is seen happening in the setting, and then shorter observations (10 minutes) focusing on the engagement and interactions in particular play scenarios of individual children and small groups.

Photographs may be taken of the children engaging in nature play. These would be used as a reflective visual image alongside the narratives written of the play scenarios. When these narratives are read back to the children, as with any learning story about their play, the children may wish to add further ‘voice’ and their perspective to the written story.

Any photographs taken that may also be used in future presentations or published articles to visually present observations of children's nature play would only be used if assent was gained from the child or children and parent(s) of the child as it is possible that the identity of the child could be identified in the photograph.

Your rights

Participating in this study is entirely voluntary. Agreeing to allow your child to be a participant or not, will not reflect on you or your relationship with the early childhood centre/kindergarten in any way.

You can withdraw your child or their information at any time without explanation.

Your child's name will remain confidential (using a pseudonym in the written material) and records will remain confidential and secure for six years. In any publication of this research, your identity will not be revealed.

You will be able to request the edited audio recordings, the edited written field notes, and view any photographs taken.

The early childhood centre/kindergarten that your child attends, will hold a copy of the final version of the study. You can obtain access to a pdf copy of the full case study with them.

Data care and use

While data is being gathered for this project, it will be stored electronically, on an external hard-drive and or locked in a secure drawer. It will remain this way for six years until paper data will be shredded and electronic data wiped from the external hard drive. The only people who will have access to your child's contributions before they are published will be myself, and my research supervisor.

The data gathered in this study will be written up in my research thesis and may also be presented at academic conferences, presentations and written up in future articles or publications.

Contact Details

If you have any queries or wish to know more please feel free to contact me. My details are:

Name: Lucinda Murch

Email: gmurch@clear.net.nz

Address: 291 Boord Crescent, RD1 Kumeu, Auckland 0891

Phone: (09) 412-8829 **Cellphone:** 027 2857484

My Supervisor is: Dr Carol Mutch, School of Critical Studies in Education, Faculty of Education, University of Auckland, Private Bag 92019, Auckland.
Work phone: (09) 623 8899 Ext 48257. Her email is: c.mutch@auckland.ac.nz

My Head of School is: Dr Airini, School of Critical Studies in Education, Faculty of Education, University of Auckland, Private Bag 92019, Auckland, Phone: 623 8899 Ext 48826. Her email is: airini@auckland.ac.nz

Yours sincerely

For any concerns regarding ethical issues, you can contact the Chair, The University of Auckland Human Participants Ethics Committee, The University of Auckland, Research Office, Private Bag 92019, Auckland 1142.
Telephone: 09 373-7599 extn. 87830/83761.
Email: humanethics@auckland.ac.nz

APPROVED BY THE UNIVERSITY OF AUCKLAND HUMAN PARTICIPANTS
ETHICS COMMITTEE ON 22/6/13 FOR (3) YEARS
REFERENCE NUMBER 9643

Appendix 4



THE UNIVERSITY OF AUCKLAND
NEW ZEALAND

School of Critical Studies
Faculty of Education
Epsom Campus
Ph: 623 8899
The University of Auckland
Private Bag 92601
Auckland, New Zealand

PARTICIPANT INFORMATION SHEET (Adult e.g., participating teacher, parent or student teacher)

Project title: An investigation of nature play in natural outdoor early childhood settings.

Name of Researcher: Lucinda Murch

Researcher introduction

I am a Masters of Education postgraduate student in the School of Critical Studies in Education, at the University of Auckland. My educational background is in Early Childhood Education having worked for the Auckland Kindergarten Association following my teacher training in 1994, and then opening my own Early Childhood Centre in 1997. I was founder, owner, licensee and teacher at Farm Friends Early Childhood Centre for 16 years, between 1997 and 2012. I have now returned to relieving work with the Auckland Kindergarten Association as I continue with my Masters studies.

My research focus is linked to my passion for providing quality early childhood settings for young children, with an interest in “nature-based” play and learning and a curiosity to know more about this current trend in early childhood education. Two or three generations ago, it wasn’t necessary to plan for natural playscapes for children – particularly in New Zealand where most children lived close to fields, recreational parks or forests, or knew family members or friends that owned farms; but today, most children no longer encounter the same outdoor play experiences.

I wish to critically research the idea that outdoor play is an important feature of education and care for young children in New Zealand, and optimally that of an outdoor environment where children can engage in a natural playscape with natural materials and naturally occurring play activities in a deep and direct manner.

Project description and invitation

The aim of this project is to investigate the current phenomenon of ‘nature-based’ play and learning in New Zealand early childhood settings in order to:

- (a) Describe what nature play “looks like” for children in a natural setting
- (b) Observe and record children’s engagement with nature and natural materials, in a nature-based environment
- (c) Analyse the play scenarios observed in these natural settings and explore the influences on play and learning that these natural environments afford young children.

During the course of my observations as young children engage in nature-based play, it is possible that their play scenarios will include engagement and interactions with adult supervisors/teachers/students. As it is my intent to gather data that documents authentic nature play for young children in a New Zealand early childhood setting, I recognise that this may also involve the adults who co-exist and interact with them in this social context.

Play scenarios, play activities and verbal interactions will be recorded by an audio-recording device or as handwritten field notes as children and possibly adults engage naturally in their play and explore the outdoor natural environments.

Project procedures

Childhood today is more connected to particular settings such as early childhood centres and schools, therefore it is in the location of an early childhood setting that provides a natural environment or regular excursions to a natural environment, that I wish to gather the data documenting children’s nature-based play. I would collect the data within the naturalness of the surroundings, as authentic nature play scenarios and interactions occur.

Alongside the other adults present in the nature settings, I would be a ‘participant observer’ within the study, as it is likely that interactions and engagement in play scenarios will occur between the children I will be observing and myself, and possibly also with the other adults.

Observations would occur over several months to allow myself as researcher, to become part of the regular nature play routines; feel part of the environment being researched, and limit my presence as being considered an ‘outsider’ by the participants. Recorded observations would include 30-40 minute broad observations of what is seen happening in the setting, and then shorter observations (10 minutes) focusing on the engagement and interactions in particular play scenarios of individual children and small groups.

Your rights

Participating in this study is entirely voluntary. Agreeing to have your social engagement and interactions with children recorded as they naturally play within the nature-based setting, or to not have them recorded, will not reflect on you or your

relationship with the early childhood centre/kindergarten, your employment, or appraisal in any way. You can withdraw your consent to be an adult participant at any time without explanation.

Your name will be renamed confidential (using a pseudonym in the written material) and records will remain confidential and secure for six years. In any publication of this research, your identity will not be revealed.

You will be able to request the edited audio recordings, the edited written field notes, and any photographs taken.

The early childhood centre/kindergarten participating in this research will hold a copy of the final version of this study. You can obtain access to a pdf copy of the full case study with them.

Data care and use

While data is being gathered for this project, it will be stored electronically, on an external hard-drive and or locked in a secure drawer. It will remain this way for six years until paper data will be shredded and electronic data wiped from the external hard drive. The only people who will have access to your child's contributions before they are published will be myself, and my research supervisor.

The data gathered in this study will be written up in my research thesis and may also be presented at academic conferences, presentations and written up in future articles or publications.

Contact Details

If you have any queries or wish to know more please feel free to contact me. My details are:

Name: Lucinda Murch

Email: gmurch@clear.net.nz

Address: 291 Boord Crescent, RD1 Kumeu, Auckland 0891

Phone: (09) 412-8829 Cellphone: 027 2857484

My Supervisor is: Dr Carol Mutch, School of Critical Studies in Education, Faculty of Education, University of Auckland, Private Bag 92019, Auckland.

Work phone: (09) 623 8899 Ext 48257. Her email is: c.mutch@auckland.ac.nz

My Head of School is: Dr Airini, School of Critical Studies in Education, Faculty of Education, University of Auckland, Private Bag 92019, Auckland, Phone: 623 8899 Ext 48826. Her email is: airini@auckland.ac.nz

Yours sincerely

For any concerns regarding ethical issues, you can contact the Chair, The University of Auckland Human Participants Ethics Committee, The University of Auckland, Research Office, Private Bag 92019, Auckland 1142.

Telephone: 09 373-7599 extn. 87830/83761.

Email: humanethics@auckland.ac.nz

APPROVED BY THE UNIVERSITY OF AUCKLAND HUMAN PARTICIPANTS
ETHICS COMMITTEE ON 22/6/13 FOR (3) YEARS
REFERENCE NUMBER 9643

Appendix 5



THE UNIVERSITY OF AUCKLAND
NEW ZEALAND

School of Critical Studies
Faculty of Education
Epsom Campus
Ph: 623 8899
The University of Auckland
Private Bag 92601
Auckland, New Zealand

CONSENT FORM (Centre Owner/Kindergarten Association)
THIS FORM WILL BE RETAINED SECURELY FOR A PERIOD OF 6 YEARS

Project title: An investigation of nature play in natural outdoor early childhood settings.

Name of Researcher: Lucinda Murch

I have read the Participant Information Sheet. I have understood the nature of the research and why this early childhood centre/kindergarten has been asked to participate. I have had the opportunity to ask questions and have them answered to my satisfaction.

- I agree that this early childhood centre/kindergarten participates in this research
- I will provide an assurance that staff, students, children, parents or community are free to participate in this research and their choice to participate or not will not impact on relationships, employment, appraisal or assessment.
- I understand that this early childhood centre/kindergarten can withdraw its participation and information at any time without explanation.
- I understand that my identity and that of the early childhood centre/kindergarten will be kept confidential, and any information provided will also be kept confidential. In any publication of this research, your identity will not be revealed.
- I understand that the early childhood centre/kindergarten will have the right to view the edited recorded play narratives, edited written field notes and photographs prior to the final compilation decisions.

- I understand that the early childhood centre/kindergarten will retain a copy of the final product and can choose to share it with the early childhood community.
- I understand that the unprocessed data and consent forms will be kept confidential and will only be viewed by the researcher and her research supervisor. This data consists of observations and play narratives and will be kept for six years, after which they they will be destroyed.

Name _____

Position _____

Signature _____ Date _____

APPROVED BY THE UNIVERSITY OF AUCKLAND HUMAN PARTICIPANTS
ETHICS COMMITTEE ON 22/6/13 FOR (3) YEARS.
REFERENCE NUMBER 9643

Appendix 6



School of Critical Studies
Faculty of Education
Epsom Campus
Ph: 623 8899
The University of Auckland
Private Bag 92601
Auckland, New Zealand

CONSENT FORM (Parent/Carer of participating child) ***THIS FORM WILL BE RETAINED SECURELY FOR A PERIOD OF 6 YEARS***

Project title: An investigation of nature play in natural outdoor early childhood settings.

Name of Researcher: Lucinda Murch

I/we have read the Participant Information Sheet. I/we have understood the nature of the research and why my/our child has been asked to participate. I/we have had the opportunity to ask questions and have them answered to my/our satisfaction.

- I/we agree to my/our child participating in this research.
- I/we understand that I/we can withdraw my/our child's participation at any time without giving a reason.
- I/we understand that my/our child's name will remain confidential, with a pseudonym used in the final written compilation
- I/we understand that my/our child's play interactions may be audio-recorded.
- I/we understand that photographs may be taken of our child engaging in nature play sequences for the purpose of reflective visual aids in gaining my/our child's perspective of the play narratives recorded.
- I/we understand that I/we can request the edited play narratives and edited written observations prior to the final compilation.
- I/we understand that the unprocessed data and consent forms will be kept confidential and will only be viewed by the researcher and her supervisor. This data consists of observations and play narratives and will be kept for six years, after which they will be destroyed.

Name _____ Parent/carer of _____

Signature _____ Date _____

Name _____ Parent/carer of _____

Signature _____ Date _____

APPROVED BY THE UNIVERSITY OF AUCKLAND HUMAN PARTICIPANTS
ETHICS COMMITTEE ON 22/6/13 FOR (3) YEARS.
REFERENCE NUMBER 9643

Appendix 7



THE UNIVERSITY OF AUCKLAND
NEW ZEALAND

School of Critical Studies
Faculty of Education
Epsom Campus
Ph: 623 8899
The University of Auckland
Private Bag 92601
Auckland, New Zealand

CONSENT FORM (Adult participant e.g., teacher, parent or student teacher) ***THIS FORM WILL BE RETAINED SECURELY FOR A PERIOD OF 6 YEARS***

Project title: An investigation of nature play in natural outdoor early childhood settings.

Name of Researcher: Lucinda Murch

I have read the Participant Information Sheet. I have understood the nature of the research and why it is possible that I may become an adult participant in this study. I have had the opportunity to ask questions and have them answered to my satisfaction.

- I agree to be a participant in this research if I am observed engaging in nature play with children and interacting in their play narratives.
- I understand that I am free to participate in this research and my choice to participate or not will not impact on my relationship with my centre/kindergarten, my employment or appraisal.
- I understand that I can withdraw my participation at any time without giving a reason.
- I understand that my name will remain confidential, with a pseudonym used in the final written compilation.
- I understand that my engagement with children may be photographed and our play narratives may be audio-recorded for transcribing. Edited transcriptions, edited written field notes and photographs may be used in future presentations and published articles.

- I understand that I can request the edited play narratives and written observations prior to the final compilation.
- I understand that the raw data consisting of observations and play narratives, along with consent forms will only be viewed by the researcher and her supervisor and will be kept for six years, after which they will be destroyed.

Name _____

Signature _____

Date _____

APPROVED BY THE UNIVERSITY OF AUCKLAND HUMAN PARTICIPANTS
ETHICS COMMITTEE ON 22/6/13 FOR (3) YEARS.
REFERENCE NUMBER 9643