PLACE-BASED OUTDOOR LEARNING ENRICHING CURRICULUM: A CASE STUDY IN AN AUSTRALIAN PRIMARY SCHOOL

Amanda Michelle Lloyd
BEd (Primary), Grad. Cert. Outdoor Education,
Masters of Environment

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Dedication

This thesis is dedicated to “Finn” whose cubby houses, conversations with mates, rock collections and jokes line the pages of this case study.

Dear Finn,

Your love of the outdoors will never be forgotten. You left us all too soon with boundless memories of your fun, antics and laughter. We treasure the moments spent with you: running in paddocks, digging in the sand, making up imaginary stories, filling our pockets with rocks and climbing trees. On your resting place, the artworks we make remind us of our time together. You live on forever in our memories and jokes. As you would say....

What do you call an alligator with a vest on?

An investigator.

Love from your Year One friends, teachers and investigators.

Finn’s mates contributed their thoughts, artwork and jokes to this thesis dedication.
Acknowledgements

This dissertation would not have reached completion without the help and support from my family, friends, colleagues, participants and the supervisory team.

I would like to acknowledge the unwavering encouragement of my parents and extended family. You are the reason I developed my love of the outdoors and inevitably, how as a “grown up” I came to complete this study. The memories we have already created are only just beginning of our adventures.

To my friends and fellow PhD students: your text messages, emails, coffees, formatting assistance and humor helped get me over the line. I am now reentering the real world and cannot wait to converse with you about just that! There are too many of you to list and for that I am blessed. Thank you!

Especially thank you to my riding, running, swimming, rowing and bushwalking mates. You were my insights into the world beyond my computer each week. When times were tough you challenged me with a: higher mountain to climb, a bigger swell to swim into or a harder cliff to navigate up. The laughs we had along the way were important outdoor learning for my own life. Words can’t express my gratitude for all your time over the last few years. Perhaps instead one day I will carry a backpack for you or wash your bike?

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Most importantly, to the Year One children involved in this case study. Thank you for allowing me tell your story. Your enthusiasm, curiosity, energy, motivation, enjoyment and fun you displayed me every outdoor learning session made you a sensational group to work with. The shared experiences building shelters, creating artworks, playing in the water and searching for animals, made every single day with you an adventure. In the future I hope you continue to love the local environments from our days in “OL”. The companionship you showed for each other and care for “Finn” was heart warming. They are friendships most people only hope for. Happy cubby house building kids!

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The PhD has been like an orienteering course: so many paths to navigate, cliffs to dodge, views to take in, experiences to remember, logs to trip over, jokes to laugh at, routes to present, results to be scrutinised and seemingly insurmountable feats to reach. However, that is what the fun is all about. To all of you out there on the course, thank you!
Statement of Authenticity

This thesis is submitted in fulfilment of the requirements of a Doctor of Philosophy degree at Western Sydney University, School of Education, Centre for Educational Research. The work presented in this thesis is, to the best of my knowledge, original except as acknowledged in the text. I hereby declare that I have not previously submitted this material, either in whole or part, for a degree at this or any other institution.

Signature: Amanda Lloyd

Date: 9th September, 2016.
TABLE OF CONTENTS

Dedication ......................................................................................................................... ii
Acknowledgements ........................................................................................................... iii
Statement of Authenticity ................................................................................................... v
List of Tables .................................................................................................................... ix
List of Figures .................................................................................................................. xi
List of Special Names, Locations or Abbreviations ......................................................... xv
Abstract ......................................................................................................................... xvi

Chapter 1: Introduction. ................................................................................................. 1
  1.1 Rationale for the study. ............................................................................................ 1
  1.2 Background to the study. ....................................................................................... 5
  1.3 Significance and purpose of the study. .................................................................. 6
  1.4 Research questions. ............................................................................................... 7
  1.5 Overview of the research methodology. ............................................................... 7
  1.6 Organisation of the thesis document. ..................................................................... 8

Chapter 2: Literature Review. ....................................................................................... 11
  2.1 Introduction: Why children need the outdoors. .................................................... 12
    2.1.1 Nature disconnection. ..................................................................................... 12
    2.1.2 Nature connection ......................................................................................... 14
  2.2 Existing research to support learning outside the classroom. ............................... 16
    2.2.1 Academic learning gain .................................................................................. 16
    2.2.2 Physical development ..................................................................................... 18
    2.2.3 Benefits of natural play .................................................................................. 19
    2.2.4 Risk benefit .................................................................................................. 20
    2.2.5 Affective outcomes ....................................................................................... 22
    2.2.6 Connection to nature .................................................................................... 23
    2.2.7 Further research directions .......................................................................... 24
2.3 Situating outdoor learning within the context of existing educational paradigms .................................................................................................................. 24
  2.3.1 Environmental education ........................................................................... 24
  2.3.2 Outdoor education ........................................................................................ 26
  2.3.3 Outdoor learning at the juncture of environmental and outdoor education. .............................................................................................................. 28
  2.4 Existing models of learning outside the classroom ....................................... 29
    2.4.1 Forest Schools in the United Kingdom ....................................................... 31
    2.4.2 Udeskole in Denmark ................................................................................. 31
    2.4.3 The Scottish Curriculum for Excellence .................................................... 32
    2.4.4 Place-based learning programs. ................................................................. 33
  2.5 Place-based education .................................................................................... 35
    2.5.1 Defining place-based pedagogy. ................................................................. 35
    2.5.2 Place-responsive pedagogy. ...................................................................... 37
    2.5.3 Indigenous connection to place ................................................................. 39
    2.5.4 Place-based education in an outdoor learning context ......................... 40
  2.6 Place-based outdoor learning theory and practice ...................................... 40
    2.6.1 Contributing learning theories ................................................................. 42
    2.6.2 Direct and immersive experiences ......................................................... 43
    2.6.3 Localised learning environments ......................................................... 44
    2.6.4. Classroom teachers deliver sessions .................................................... 45
    2.6.5. Interdisciplinary curriculum learning ................................................... 46
  2.7 Conclusion ...................................................................................................... 48

Chapter 3: Methodology and Methods. ................................................................. 50
  3.1 Introduction .................................................................................................... 51
  3.2 Position of the researcher .............................................................................. 52
  3.3 Theoretical framework ................................................................................. 54
    3.3.1 Epistemology ........................................................................................... 55
    3.3.2 Theoretical Perspective ......................................................................... 57
    3.3.3 Research Methodology .......................................................................... 58
  3.4 Research with children ............................................................................... 60
    3.4.1 Children as active agents in research ..................................................... 60
    3.4.2 Children’s level of participation ............................................................... 62
    3.4.1.1 The Mosaic Approach ....................................................................... 63
3.5 Convergent mixed method design................................................................. 64
3.6 Data analysis and emergent themes. ............................................................. 65
   3.6.1 Curriculum and engagement. ............................................................... 67
   3.6.2 Wellbeing ......................................................................................... 67
   3.6.3 Making connections. .......................................................................... 67
3.7 Case study documentation ........................................................................... 68
3.8 Ethical considerations. .................................................................................. 69
3.9 Data collection methods. .............................................................................. 70
   3.9.1 Visual methods. .................................................................................. 72
   3.9.2 Work samples. ................................................................................... 73
   3.9.3 Observations. ..................................................................................... 75
   3.9.4 Semi-formal interviews ..................................................................... 78
   3.9.5 Connection to Nature Index (CNI). ...................................................... 79
   3.9.6 School academic data. ........................................................................ 80
   3.9.7 General school data. .......................................................................... 81
3.10 Conclusion .................................................................................................... 82

Chapter 4: Case Study Context. ....................................................................... 83
4.1 Introduction .................................................................................................... 84
4.2 The case study context. .................................................................................. 84
   4.2.1 Geographic context ............................................................................ 84
   4.2.2 Indigenous context ............................................................................ 85
   4.2.3 School situational analysis. ................................................................. 85
   4.2.4 Class situational analysis. ................................................................. 86
4.3 Outdoor learning sites. .................................................................................. 87
   4.3.1 School playground ............................................................................ 88
   4.3.2 Local block. ...................................................................................... 89
   4.3.3 Ben’s Walk. ...................................................................................... 90
   4.3.4 Bundanon Trust. ............................................................................... 90
   4.3.4 Booderee National Park. ................................................................. 91
4.4 Outdoor learning curriculum ......................................................................... 92
4.5 Pragmatic considerations. ............................................................................ 94
   4.5.1 Timetabling. ...................................................................................... 94
   4.5.2 Risk assessment. ............................................................................... 95
4.5.3 Providing information to parents. ................................................................. 96
4.5.4 Toilets ........................................................................................................ 97
4.5.5 Class outdoor learning kit. ........................................................................ 98
4.5.6 Individual outdoor learning kit................................................................. 98
4.5.7 Behaviour management ............................................................................. 98
4.6 Conclusion...................................................................................................... 99

Chapter 5: Synopsis of School Based Assessment............................................ 100
5.1 Introduction.................................................................................................... 100
5.2 Academic data. ............................................................................................. 101
5.3 Discussion of academic data. ...................................................................... 104
5.4 Behaviour records. ..................................................................................... 104
5.6 Focus children profiles. ................................................................................ 107
5.7 Conclusion.................................................................................................... 116

Chapter 6: Results: A Journey in Place and Water......................................... 117
6.1 Introduction. .................................................................................................. 118
6.2 Session 1 - Black Cockatoo........................................................................ 118
    Findings ......................................................................................................... 119
6.3 Session 2 - I Went Walking. ...................................................................... 122
    Findings ......................................................................................................... 122
6.4 Session 3 - Bundanon Introduction. ............................................................. 125
    Findings ......................................................................................................... 126
6.5 Session 4 - The Expedition. ...................................................................... 128
    Findings ......................................................................................................... 128
6.6 Session 5 - Water Audit. ............................................................................ 131
    Findings ......................................................................................................... 131
6.7 Session 6 - Stick Men.................................................................................. 133
    Findings ......................................................................................................... 134
6.8 Session 7 - Water Walk.............................................................................. 136
    Findings ......................................................................................................... 137
6.9 A Journey in Place and Water - Introduction to discussion ....................... 139
6.10 A Journey in Place and Water - Curriculum and engagement.................. 139
6.10.1 Behaviours for learning. ................................................................. 140
6.10.2 Playful learning. ........................................................................ 141
6.10.3 Incidental learning. ................................................................. 143
6.10.4 Transfer of learning ............................................................... 143
6.10.5 Curriculum outcomes. ............................................................. 144

6.11 A Journey in Place and Water - Wellbeing. ........................................... 149
6.11.1 Positive relationships. .............................................................. 149
6.11.2 Independence and responsibility. .............................................. 150
6.11.3 Resilience, risky play and self-regulation .................................... 152
6.11.4 Parental involvement. ............................................................. 153

6.12 A Journey in Place and Water – Making connections. ......................... 154
6.12.1 Background knowledge and past experiences. ............................. 154
6.12.2 Connecting home and school. .................................................. 155
6.12.3 Environmental connection. ...................................................... 156
6.12.4 Indigenous connection. ........................................................... 157

6.13 Conclusion................................................................................. 157

Chapter 7: Results - Landscapes. .............................................................. 159

7.1 Introduction. ................................................................................. 160

7.2 Session 8 - Patterns and Sounds. ..................................................... 160
Findings ....................................................................................... 161

7.3 Session 9 - Diary of a Wombat. ...................................................... 165
Findings ....................................................................................... 165

7.4 Session 10 and 11 - Exploring Ben’s Walk. ....................................... 170
Findings ....................................................................................... 171

7.5 Session 12 - Booderee National Park. .............................................. 175
Findings ....................................................................................... 176

7.6 Session 13 - Wet and Dry Environment Triptych. ............................ 183
Findings ....................................................................................... 183

7.7 Session 14 - Revisiting Ben’s Walk. ............................................... 185
Findings ....................................................................................... 186

7.8 Landscapes - Introduction to discussion. ....................................... 190

7.9 Landscapes - Curriculum and engagement .................................... 190
7.9.1 Behaviours for learning................................................................. 190
7.9.2 Focus on learning intention......................................................... 192
7.9.3 Taking risks in learning.............................................................. 193
7.9.4. Transfer of learning................................................................. 194
7.9.5 Curriculum outcomes. .............................................................. 194
7.10 Landscapes – Wellbeing. .............................................................. 199
7.10.1 Positive relationships.............................................................. 199
7.10.2 Resilience, risky play and self-regulation................................. 200
7.11 Landscapes - Making connections. .............................................. 201
7.11.1 Background knowledge and past experiences.......................... 201
7.11.2 Environmental connections...................................................... 202
7.11.3 Connecting to animals.............................................................. 204
7.12 Conclusion..................................................................................... 204

Chapter 8: Results – Schoolyard Safari........................................... 206
8.1 Introduction..................................................................................... 207
8.2 Session 15 - Yarning Stick Revisited............................................. 207
  Findings............................................................................................. 208
8.3 Session 16 - Leaf Men................................................................. 209
  Findings............................................................................................. 210
8.4 Session 17 - Observing Worms and Planting Vegetables.............. 214
  Findings............................................................................................. 214
8.5 Session 18 - Finding Small Creatures.......................................... 215
  Findings............................................................................................. 215
8.6 Session 19 - Ant Trails................................................................. 216
  Findings............................................................................................. 216
8.7 Session 20 - Ben’s Walk Worm Adventure................................... 218
  Findings............................................................................................. 219
8.8 Session 21 - Worm Town Walk.................................................... 221
  Findings............................................................................................. 222
8.9 Session 22 - What is Important in Our School?............................ 227
  Findings............................................................................................. 227
8.10 Session 23 - Bundanon Frogs and Fun...................................... 229
Findings ............................................................................................................................... 230

8.11 Concluding Outdoor Learning Interviews ............................................................... 233

8.12 Schoolyard Safari - Introduction to discussion in emergent themes ................. 235

8.13 Schoolyard Safari - Curriculum and engagement ................................................. 235

8.13.1 Behaviours for learning ....................................................................................... 235

8.13.2 Playful learning .................................................................................................. 236

8.13.3 Curriculum outcomes ......................................................................................... 238

8.14 Schoolyard Safari - Wellbeing ............................................................................. 239

8.14.1 Positive relationships ......................................................................................... 239

8.14.2 Independence and responsibility ....................................................................... 241

8.14.3 Resilience, risky play and self-regulation ............................................................ 241

8.14.4 Parental involvement .......................................................................................... 242

8.15 Schoolyard Safari - Making connections .............................................................. 242

8.15.1 Environmental connection ............................................................................... 243

8.15.2 Connection to animals ....................................................................................... 244

8.15.3 Care for the environment .................................................................................. 244

8.16 Conclusion ............................................................................................................... 245

Chapter 9: Conclusion and Recommendations ........................................................... 247

9.1 Introduction ............................................................................................................... 248

9.2 Which pedagogical approaches are effective in place-based outdoor learning? ... 249

9.2.1 Constructivst learning theories ............................................................................ 249

9.2.2 Authentic learning ............................................................................................... 251

9.2.3 Experiential education ....................................................................................... 252

9.2.4 Place-based pedagogy ....................................................................................... 253

9.3 Pedagogical limitations ............................................................................................ 257

9.4 The impact of outdoor learning. What do children learn as a result of outdoor learning experiences? .................................................................................................................. 259

9.4.1 Curriculum and engagement .............................................................................. 259

9.4.2 Wellbeing .......................................................................................................... 261

9.4.3 Making connections ......................................................................................... 264

9.5 What curriculum learning occurred in PBOL? ....................................................... 266

9.5.1 English ............................................................................................................... 266
9.5.2 Science .................................................................................................................. 267
9.5.3 Human Society and Its Environment/ Geography .............................................. 269
9.5.4 Visual Arts .......................................................................................................... 270
9.5.5 Personal Development, Health and Physical Education .................................. 272
9.6 Case study research limitations ............................................................................. 273
9.7 Recommendations for future practice, professional development and research. ......................................................................................................................... 273
  9.7.1 Recommendations for further pedagogical developments ............................. 274
  9.7.2 Recommendations for further practice, policy and professional development ........................................................................................................ 275
  9.7.3 Recommendations for further research ............................................................. 276
9.8 Significance and conclusions of the PBOL case study ............................................. 278
9.9 Reflections and impact of the PBOL case study ...................................................... 280
REFERENCES ............................................................................................................. 283
Appendix A: Data schedule .......................................................................................... 302
Appendix B: Blog entry .............................................................................................. 303
Appendix C: Ethical consent information .................................................................... 304
Appendix D: Semi-formal interview questions ............................................................ 312
Appendix E: Curriculum content overviews ............................................................... 313
Appendix F: Blanket excursion note .......................................................................... 317
Appendix G: Weekly note ........................................................................................... 318
List of Tables

Table 3.1 Data collection organisation...........................................52
Table 3.2 Theoretical framework...................................................55
Table 3.3 Overview of research methods.......................................71
Table 3.4 Whole class data collection schedule...............................72
Table 3.5 Focus children data collection schedule............................72
Table 3.6 Use of GoPro cameras in observations.............................77
Table 4.1 Curriculum Guidelines..................................................93
Table 4.2 Year One Outdoor Learning Overview............................93
Table 5.1 Burt Reading Recognition Test......................................101
Table 5.2 Reading Running Record Benchmark Attainments..............102
Table 5.3 Dalwood Spelling..........................................................103
Table 5.4 SENA Testing...............................................................104
Table 5.5 Behaviour Incidents......................................................105
Table 5.6 Profile of Bruce............................................................108
Table 5.7 Profile of Griffith..........................................................109
Table 5.8 Profile of Henry.............................................................110
Table 5.9 Profile of Jessica...........................................................111
Table 5.10 Profile of Julia.............................................................112
Table 5.11 Profile of Lily...............................................................113
Table 5.12 Profile of Mario...........................................................114
Table 5.13 Profile of Taj..............................................................115
Table 6.1 Thoughts on water and weather. ................................................................. 133
Table 6.2 A Journey in Place and Water curriculum outcomes. ................................. 144
Table 7.1 Henry’s commentary .................................................................................. 162
Table 7.2 Mario Diary of a Wombat interview ......................................................... 169
Table 7.3 Lily Diary of a Wombat interview ............................................................. 170
Table 7.4 Ben’s Walk interviews .............................................................................. 175
Table 7.5 Scavenger hunt conversation. ................................................................. 178
Table 7.6 Griffith’s semi-formal interview at Greenpatch Beach ............................. 179
Table 7.7 Wet and dry triptych analysis ................................................................. 184
Table 7.8 Landscapes curriculum outcomes. .......................................................... 195
Table 7.9 HSIE curriculum indicators. ................................................................. 197
Table 8.1 Leaf men transcript. .............................................................................. 211
Table 8.2 Making ant trail interviews .................................................................. 217
Table 8.3 Town walk writing samples. ................................................................. 226
Table 8.4 Bundanon reflections. ............................................................................ 232
Table 8.5 What did I learn at Bundanon? ............................................................... 233
Table 8.6 CNI Photo elicitation. ........................................................................... 234
Table 8.7 Levi and Bruce English Assessment Indicators. .................................. 237
Table 8.8 Lily and Amber English Assessment Indicators ................................... 237
Table 8.9 Schoolyard Safari Curriculum Outcomes ............................................ 238
Table 9.1 Place-responsive activities typology of PBOL. .................................... 255
List of Figures

Figure 2.1: Positive interactive cycle of accessibility, mobility and engagement with environment leading to environmental change agency ........................................... 15

Figure 3.1: Comparing environments triptych ........................................................................ 74

Figure 4.1 Black Cockatoo play space ........................................................................ 88

Figure 4.2 Local block. ........................................................................................................ 89

Figure 4.3 Ben's Walk ......................................................................................................... 83

Figure 4.4 Bundanon Trust ................................................................................................ 91

Figure 4.5 Booderee National Park ................................................................................... 92

Figure 4.6 The zombie walk ............................................................................................... 96

Figure 4.7 Safe challenge and risks .................................................................................. 96

Figure 6.1 Pre-program responses .................................................................................... 120

Figure 6.2 Outdoor learning yarning circle ..................................................................... 120

Figure 6.3 Flowers in nest constructions ........................................................................... 121

Figure 6.4 Small nest constructions .................................................................................. 121

Figure 6.5 Initial tree climbing .......................................................................................... 121

Figure 6.6 Yarning stick attachment .................................................................................. 123

Figure 6.7 Yarning stick ..................................................................................................... 123

Figure 6.8 I went walking written work ............................................................................. 123

Figure 6.9 I went walking sentences .................................................................................. 124

Figure 6.10 Dead bird .......................................................................................................... 124

Figure 6.11 I went walking interviews .............................................................................. 125

Figure 6.12 Listening skills ................................................................................................. 126
Figure 6.13 Walking in the paddocks .......................................................... 127
Figure 6.14 Water sand play ................................................................. 127
Figure 6.15 Assisted sand play ............................................................. 127
Figure 6.16 Year One’s Great Expedition ............................................. 129
Figure 6.17 Expedition maps and interpretations .................................. 130
Figure 6.18 The Expedition class writing ............................................. 131
Figure 6.19 Water photo elicitation ....................................................... 132
Figure 6.20 Reading The Stick Man ....................................................... 134
Figure 6.21 Stick Men group work ......................................................... 135
Figure 6.22 Stick Men independence ..................................................... 135
Figure 6.23 Taj in the Stick Men ............................................................. 135
Figure 6.24 Mario and his Stick King .................................................... 136
Figure 6.25 Water Walk ................................................................. 137
Figure 6.26 Water Walk Nature Journals .............................................. 138
Figure 6.27 Bruce's ephemeral art ......................................................... 139
Figure 7.1 Stick length check ............................................................... 162
Figure 7.2 Andy Goldsworthy artworks ................................................. 163
Figure 7.3 Andy Goldsworthy friends .................................................... 163
Figure 7.4 Jordan’s Andy Goldsworthy artwork .................................... 164
Figure 7.5 Wombat observational photographs ...................................... 166
Figure 7.6 Wombat hole supported group ............................................ 166
Figure 7.7 Wombat hole engagement .................................................. 167
Figure 7.8 Diary of a Wombat photograph totals .................................... 168
Figure 7.9 Lily and her wombat books ................................................. 170
Figure 7.10 Exploring environmental features on Ben’s Walk .................. 172
Figure 7.11 Ben’s Walk Nature Journal ............................................... 172
Figure 7.12 Ben’s Walk challenging skills ................................................................. 172
Figure 7.13 Kim’s Game collection ................................................................. 173
Figure 7.14 Compass activity ................................................................. 173
Figure 7.15 Ben’s Walk maps ................................................................. 174
Figure 7.16 Botanic Gardens scavenger hunt ................................................................. 177
Figure 7.17 Scavenger hunt small group work ................................................................. 177
Figure 7.18 Griffith at Greenpatch Beach ................................................................. 179
Figure 7.19 Maps at Greenpatch Beach ................................................................. 180
Figure 7.20 Booderee information texts ................................................................. 181
Figure 7.21 Wet and dry environment triptych ................................................................. 184
Figure 7.22 Ben’s Walk bridge ................................................................. 186
Figure 7.23 Jessica’s thoughts about the bridge ................................................................. 187
Figure 7.24 Physical challenges on Ben’s Walk ................................................................. 188
Figure 7.25 Lily’s photo elicitation of Ben’s Walk ................................................................. 189
Figure 7.26 Henry’s photo elicitation of Ben’s Walk ................................................................. 189
Figure 8.1 Yarning sticks revisited ................................................................. 208
Figure 8.2 Leaf men play ................................................................. 210
Figure 8.3 Leaf man story development ................................................................. 212
Figure 8.4 Leaf men stories from play to written work ................................................................. 213
Figure 8.5 Planting vegetables ................................................................. 215
Figure 8.6 Taj finding small creatures ................................................................. 216
Figure 8.7 Julia and Jessica ant trails ................................................................. 216
Figure 8.8 Schoolyard safari behaviours for learning ................................................................. 218
Figure 8.9 Ben’s Walk final observations ................................................................. 219
Figure 8.10 Bruce’s family at Ben’s Walk ................................................................. 221
Figure 8.11 Walking in town ................................................................. 222
Figure 8.12 Events in town. ................................................................. 223
Figure 8.13 Julia and Lily’s town photographs ........................................ 224
Figure 8.14 Town semi-formal interviews ............................................... 225
Figure 8.15 Final school maps ............................................................... 228
Figure 8.16 Final photo elicitation ......................................................... 229
Figure 8.17 Final Bundanon observations ............................................... 231
List of Special Names, Locations or Abbreviations

Names
Annie – Classroom teacher of the case study outdoor learning program
Elizabeth – Education Officer at Bundanon
Betty – School Indigenous Education Officer

Locations
School playground
Local block
Ben’s Walk
Bundanon
Booderee National Park (Botanic Gardens and Greenpatch Beach)

Abbreviations
ACARA – Australian Curriculum, Assessment and Reporting Authority
BOSTES – Board of Studies Teaching and Educational Standards NSW
CAPA – Creative and Practical Arts
CNI – Connection to Nature Index
HSIE – Human Society and Its Environment
NSW – New South Wales
PBOL – Place-based Outdoor Learning
PDHPE – Personal Development, Health and Physical Education
SENA – Schedule for Early Number Assessment
Abstract

Childhood is the most influential time to foster an affinity to the natural world. At this stage of development children need to be provided with immersive experiences within their local places. However, nature disconnection is now common across all aspects of children’s lives. An increasing awareness of the nature disconnect has led to the implementation of outdoor learning programs in schools around the world. Significant examples are: udeskole in Denmark, Forest Schools in the United Kingdom and the promotion of the outdoors in the Scottish Curriculum for Excellence. Utilising place-based educational theory has also been proven to increase environmental connection for children. Academic, social, emotional and physical gains are reported benefits of the existing programs.

Pertaining to the related literature and existing outdoor learning models, a place-based outdoor learning (PBOL) was devised for pragmatic application in Australian primary schools. Contributing learning theories guiding the curriculum framework were drawn from constructivist pedagogy, specifically social constructivist theory, authentic learning, experiential education and place-based learning. Core to all activities was the direct and immersive experiences in localised learning environments, which emphasised place-responsiveness.

A case study methodology was chosen to guide the collection, analysis and interpretation of data. The mixed method convergent design organised the quantitative and qualitative data for evaluation. Researcher reflexivity was pivotal due to the authors dual roles in the case study, one as a part time teacher of the class as well as a researcher. Notably, I was not the teacher who delivered the PBOL sessions.
A Year One class of 27 children, n = 14 girls and n = 13 boys, participated in the study. The children were five or six years old at the commencement of the study. Whole class data collection included academic results, behavioural records, a connection to nature survey and general observations. In addition, eight focus children were involved in further research tasks to ensure a depth of understanding. These methods included: semi formal interviews, visual methods, photographs, photo elicitation, structured observations, which utilised body worn GoPro cameras and the collection of work samples.

The PBOL program was delivered over the duration of one school year and sessions occurred in the school grounds and local area for a whole or half day each week. Core subjects included in the outdoor learning program were: English, Science, Human Society and Its Environment/Geography, Science and Personal Development, Health and Physical Education. Data was collected throughout the sessions and arranged into three emergent themes: curriculum and engagement, wellbeing and making connections.

Findings suggest that, PBOL effectively utilised constructivist and place-based pedagogy to advance learning. Paramount curriculum stimulated by outdoor learning includes: vocabulary development, motivation for learning, engagement to tasks, working scientifically skills, proficiency using geography fieldwork tools, a transfer of knowledge to written work, fine and gross motor skill development and creativity completing artworks. Children’s overall wellbeing also benefitted namely their positive relationships, self-regulation, independence, responsibility and resilience. Making connections to their past experiences, background knowledge, Indigenous culture and environment increased the children’s connection to place.

The impact of this study covered multiple aspects of the participating children lives. Findings promote that the PBOL program was a success at connecting children to nature within a curriculum model, stimulating academic learning and contributing to overall wellbeing. The conclusions and recommendations can be utilised to drive future outdoor learning policy and application within an Australian context and additionally may also be of interest and relevance to a global audience.
Chapter 1: Introduction.

1.1 Rationale for the study.

1.2 Background to the study.

1.3 Significance and purpose of the study.

1.4 Research questions.

1.5 Overview of the research methodology.

1.6 Format of the thesis document.

1.1 Rationale for the study.

The formative years of a child’s life are the most influential time to foster an affinity with the natural world (Charles, Louv, Bodner & Guns, 2008; Davies, 1996; Gray & Martin, 2012; Lloyd & Gray, 2014; Santer, Griffiths & Goodall, 2007). Therefore, at this pivotal stage in their lives children need to be provided with an opportunity to
develop a sense of wonder, curiosity and awe of the world they live in. The outdoors promotes development in a vast spectrum of areas for children including social, emotional, physical and academic domains (Chawla, 2007; Malone, 2008; Maynard, 2007; Munoz, 2009; O’Brien & Murray, 2007; Rickinson et al., 2004 & State Education and Environment Roundtable - SEER, 1995; 2005).

It is my firm belief childhood experiences shape the person you become as an adult. Hence I believe the outdoors provided a firm grounding for the rest of my life. Essentially, it has shaped who I was, who I am and who I will become:

As a little girl I had a boundless sense of wonder that flourished in the outdoors. My spare time and holidays were spent in a tiny coastal hamlet on the South Coast of New South Wales. My family, and the ones in the houses around us, had been holidaying there for generations. Our holiday house was my spiritual home. There was nothing to do there and yet there was everything to do there. Headlands to wander, old bikes to be fixed, fires to build, waves to be caught, billycarts to race and mischief to be had.

Being the eldest child in a large extended family group, I was babysitting from a young age. I was looking after the “little ones” from a time when I was not even at school myself. I was already deemed the responsible one. Literally, leading the “little ones” down the garden path on adventures. More often than not, over wild bushy headlands and through the long grass with none of us wearing shoes or thongs We were grounded in the outdoors. We knew the land and the land knew us.

As a teenager I turned to bushwalking, spending my weekends in the bush camping with friends. We would leave on a Saturday morning with a rough plan and return full of adventure in the dark on a Sunday night. Any other spare time was spent leading
a variety of youth groups for children and younger teenagers. Sometimes the two combined and that was the most memorable.

It was no surprise when I ended up as a primary school teacher. I had always been responsible for the “little ones” I knew life no other way. I enjoyed and thrived on it. About ten years down into my teaching career I had held leadership positions in schools, coordinated environmental education networks and secured a much sought after teaching job on the South Coast of New South Wales. I was living the coastal dream not far up the road from the family holiday house.

The teacher persona of “Miss Lloyd” had a costume of sorts, acting the role of the conforming primary school teacher—working hard with class after class, year after year. “Miss Lloyd” was yearning to be who she was with the “little ones” in the outdoors. To be rid of the costume. To teach others to be empowered to love the land like I did.

With the outdoors being such a pivotal part of my life it was notably absent from my teaching. It was intrinsic to my very being and yet it had escaped my daily professional life. It had escaped when I conformed to the rules and regulations of an education system I had more than a few moral issues with.

I embarked on a postgraduate search for discovery in an aim to find the knowledge I felt was missing from my teaching. A Graduate Certificate in Outdoor Education, a Masters of Environmental Education, Forest Schools training in the United Kingdom and work as a climate change advocate for the people of Kiribati followed.
I was searching for a more immersive way to teach the precious “little ones” in my care. To connect them to local places, the environment and to instill a love of the earth in their lives.

To me it seems like my whole life has been converging on this point. Embarking on a PhD became the answer to my professional searching—both for connecting children to local places and discovering innovative learning programs. Designing, implementing and researching learning in the outdoors seems intrinsic to my being. That is, devising a way that children can learn in environments to suit their needs, interests and learning styles and connect to their local places.

On this journey, I also had to learn to reflect, to know I did not have all the answers. Working out, that to make the sound judgements in teaching, you need to listen to the children you are working with. They are after all, the best ones to tell you what they are really learning.

So how do we as Primary School teachers devise place-based outdoor learning? How do we deliver curriculum in a variety of settings to benefit all children? Will this empower the children to form relationships with each other and the land? Does this make them environmental stewards? How do we listen to the children to help us drive innovative learning? How do we connect children to the natural world?

Growing up I had ample time to develop my relationship with the natural world. I spent considerable time outside learning, forming friendships and discovering life’s lessons. There was little thought about what I was actually learning, my values or what I would be “when I grew up”. Rather, I was living in the moment, having fun and taking on life for all it had to offer. My future as an active citizen with a sense of responsibility, connection, care, resilience, self-awareness and an unmistakeable comfort in the natural world had begun. Back then I was not aware of the impact
those experiences would have on the rest of my life. Retrospectively, it was the experiences outdoors that has had a salient impact on my life as a “grown up”.

1.2 Background to the study.

Sobel (1996) posits that “If we want children to flourish, to become truly empowered, then let us allow them to love the earth before we ask them to save it” (p. 39). Connection to nature by fostering a lifelong relationship with the natural environment constructs environmental knowledge and a deeper understanding of the world. It makes for active citizens who can make informed environmental decisions (Chawla, 2007; Sobel, 1996).

Hence, it is acknowledged that a nature-estranged lifestyle is cause for concern (Gray, 2005; Kellert, 2012; Townsend & Weerasuriya, 2010). Direct contact with the natural world is diminishing for many children in modern society. O’Brien & Murray (2006) espouse “the vital experience of using the outdoors and being comfortable in nature is being lost” (p. 5). In Australia it is becoming increasingly evident children are not spending time outdoors and as a result their connection with nature is not developing. The report “Who Cares about the Environment in 2009?” (Department of Environment Climate Change and Water, 2010) states the percentage of respondents who participated in environmental activities was generally under 50%. Owing to this disconnect there is an increasing importance to include immersive outdoor nature experiences in the formal school curriculum (Lloyd & Gray, 2014). In effect it may be the only situation where children are afforded the opportunity of connecting with the natural world.

The outdoors is becoming increasingly prominent in empirical educational research (Kellert, 2012; Munoz, 2009; Rickinson et al., 2004). Furthermore, it has been proven that learning in the outdoors has significant educational advantages for children in the primary school years (O’Brien & Murray, 2007; Rickinson et al., 2004; State Education and Environment Roundtable-SEER, 1995; 2005). Outdoor learning in primary schools is evident in educational practices around the globe. Having established a firm place in Scandinavian curricula, outdoor pedagogy is also emerging in other countries, including in the United Kingdom (Beames, Nicol &
Higgins, 2012; Bensten, Jensen, Mygind & Randrup, 2010; Mannion, Mattu & Wilson, 2015). As a result of my direct experience with these specific pedagogical approaches, these countries are salient precursors to this specific case study.

1.3 Significance and purpose of the study.

The significance of this study is its contribution as an Australian perspective to scholarly literature concerning outdoor learning. Based on my 15 years’ experience teaching and in leadership roles within the primary school sector in this country, I have gauged the approach to outdoor learning as ad hoc. Additionally, there is also confusion surrounding what outdoor learning actually is both in our localised education system and other contexts such as the United Kingdom. Considerable policy, programming and pragmatic barriers exist for the implementation of outdoor learning in Australia. The literature review contextualises these perceived issues citing current documents and existing research. An overview of outdoor pedagogy examines existing practice occurring in England, Scotland and Denmark. These pragmatic examples provide evidence of advantages to outdoor learning.

Therefore, the purpose of this thesis is to be a driving force for the implementation of place-based outdoor learning in the Australian primary school sector. Constructivist pedagogy, authentic learning theory, experiential education, sustainability concepts, Aboriginal and Torres Strait Islander perspectives and place-based pedagogy are outlined to allow a conceptualisation of outdoor learning to be developed. A localised place-based outdoor learning curriculum framework is subsequently compiled from this information.

A definition of place-based outdoor learning is included in the Literature Review, with a rigorous discussion of its’ place at the juncture of environmental and outdoor education. The salient areas of place-based outdoor learning are outlined as direct and immersive experiences, localised learning environments, classroom teachers deliver sessions, interdisciplinary curriculum learning and the development of affective outcomes.
The subsequent implementation and evaluation of the pilot outdoor curriculum provides a clear argument for the distinct educational advantages that place-based outdoor learning pedagogy can achieve.

1.4 Research questions.

Overarching research question:

**How can place-based outdoor learning enrich children’s education in a primary school?**

There are three research sub questions:

1. Which pedagogical approaches are effective in place-based outdoor learning?
2. What do children learn as a result of outdoor learning experiences?
3. What curriculum can be developed in place-based outdoor learning?

1.5 Overview of the research methodology.

A case study methodology was adopted as it has been widely acknowledged (Kyburz-Graber, 2004, as cited in Kopelke, 2012) that they are “useful in educational research to describe context-specific educational situations” (p. 61). Furthermore, Gillham (2000) explains “the naturalistic style of case study research makes it particularly appropriate to study human phenomena, and what it means to be human in the real world ‘as it happens’ ” (p. 2). The research positions itself within the social constructivist paradigm where ontology sees realities as constructed through lived experiences and the interactions with others. As such, a distinguishing feature of this case study was ascertaining the perspectives of children as they participated in the outdoor learning program.

A Year One class participated in a place-based outdoor learning program over the duration of three school terms. The school was located in Nowra, a regional town on the New South Wales South Coast. Integrated curriculum units were taught by one of their regular classroom teachers. Content that would normally be taught indoors was taught in the school playground and a variety of locations close to the school.
The convergent mixed method design (Creswell, 2015) was implemented to organise the chain of evidence. Empirical data was drawn from the whole class cohort, in the form of academic and behavioural records. At each outdoor session, I conducted whole class general observations as a participant observer. Additionally, eight focus children were involved in subsequent in-depth research tasks. Data were collected from these children during semi-formal interviews, as work samples and in structured observations, which included the use of body worn camera technology.

Drawing on the work of Clark (2004) the study was guided by the ‘mosaic approach’, which is argued as appropriate for children of this age. This approach involves the use of multiple research tools, such as photography and visual methods, which are all commonly used in case studies. The collected data were analysed using inductive open coding, allowing emergent themes to be identified. Subsequent results were organised into the themes of curriculum and engagement, making connections and wellbeing.

1.6 Organisation of the thesis document.

This thesis is comprised of nine chapters whose contents are outlined below. The introductory chapter has provided the direction, significance, purpose and organisation of the thesis. Subsequent chapters expand on this introduction to give rich understandings of the background to Australian place-based outdoor learning pedagogy and the delivery of outdoor learning. Results, discussions and conclusions are drawn from the collected data.

Chapter Two reviews current literature pertaining to outdoor learning. It frames the study within existing outdoor education, outdoor learning and environmental education traditions. Educational theories contributing to place-based outdoor learning pedagogy are examined. Specifically, authentic learning theory, experiential education and place-based pedagogies are reviewed in terms of their pragmatic application in an Australian curriculum context. Place-based outdoor learning is then defined and pragmatically situated within an Australian school context. Existing empirical outdoor learning research is outlined and the perceived gaps identified.
Chapter Three is a detailed overview of case study methodology, the specific methods used to obtain data and the process of analysis utilised in this study. Concluding the chapter are definitions of the inductively formulated emergent themes curriculum and engagement, making connections and wellbeing.

The contextual framing of the case study is presented in Chapter Four. A situational analysis and description of the outdoor learning sites provide vital background knowledge to the reader. The program for the case study is presented as learning units, “A Journey in Place and Water”, “Landscapes” and “Schoolyard Safari”. The complete overviews for these units are included in the Appendix section.

A synopsis of academic growth and behavior data is presented in Chapter Five. Whole class quantitative results from English and Mathematics standardised testing are included. Additionally, individual focus children’s attainment levels across the curriculum are summarised. Mandatory behaviour records from the school are presented and an ensuing discussion follows.

The format of the findings in Chapters Six, Seven and Eight, is consistent. Each chapter presents a single learning unit, which equates to a school term of ten weeks duration - of focused outdoor learning. Firstly, each outdoor session is summarised and the subsequent results presented with salient data including, researcher photographs, children’s photographs, work samples and interview transcripts. Following this is a discussion of findings under the emergent themes. A summary of learning gains and further developments concludes each chapter with specific reference to place-based outdoor learning curriculum.

Chapter Six is the first findings chapter “A Journey in Place and Water”. Primarily this was the introductory outdoor learning unit, focused on the subjects of English, Science and Visual Arts. The results presented in this chapter serve as a benchmark for subsequent findings chapters. Information regarding entry level learning behaviours, connection, wellbeing and understanding of curriculum is outlined.

The findings presented in Chapter Seven provide information about the “Landscapes” unit. Learning was in the English, Human Society and Its Environment
(HSIE) and Visual Arts subjects. This was an immersive sequence of sessions, where the children were encouraged to experience a number of local environments. Oral language development, a transfer of knowledge to writing, development of social skills and deepening connections with the environment are the salient findings unfolding in this chapter.

“Schoolyard Safari” is the focus for Chapter Eight. The final term of outdoor learning focused on Science and English learning outcomes. Data presented in this chapter are largely evaluative and comparative. As such, it depicts the growth in children across all emergent themes.

Finally, Chapter Nine concludes the thesis with an overall discussion of the findings, before presenting the conclusion and recommendations. This chapter examines the data in conjunction with the research sub questions. Final recommendations are made in terms of the relevance of place-based outdoor learning in an Australian context, and if it does, in fact, connect children to local environments, promote wellbeing and enhance academic results in a school setting. Recommendations are made for future developments of outdoor learning including teacher professional development, pragmatics and alignment with curriculum documents.
Chapter 2: Literature Review.

2.1 Introduction: Why children need the outdoors.

2.1.1 Nature disconnection.
2.1.2 Nature connection.

2.2 Existing research to support learning outside the classroom.

2.2.1 Academic learning gain.
2.2.2 Physical development.
2.2.3 Benefits of natural play.
2.2.4 Risk benefit.
2.2.5 Affective outcomes.
2.2.6 Connection to nature.

2.3 Situating outdoor learning within the context of existing educational paradigms.

2.3.1 Environmental education.
2.3.2 Outdoor education.
2.3.3 Outdoor learning at the juncture of environmental and outdoor education.
2.4 Existing models of learning outside the classroom.
2.4.1 Forest Schools in the United Kingdom.
2.4.2 Udeskole in Denmark.
2.4.3 The Scottish Curriculum for Excellence.
2.4.4 Place-based learning programs.

2.5 Place-based education.
2.5.1 Defining place-based pedagogy.
2.5.2 Place-responsive pedagogy.
2.5.3 Indigenous connection to place.
2.5.4 Place-based education in an outdoor learning context.

2.6 Place-based outdoor learning theory and practice.
2.6.1 Contributing learning theories.
2.6.2 Direct and immersive experiences.
2.6.3 Localised learning environments.
2.6.4. Classroom teachers deliver sessions.
2.6.5. Interdisciplinary curriculum learning.

2.7 Conclusion.

2.1 Introduction: Why children need the outdoors.

Empirical evidence advocates nature delivers measurable benefits to children across vast aspects of their lives (Africa, et al., 2014; Chawla, 2007; Kellert, 2012; Keniger, Gaston, Irvine & Fuller, 2013). Specific broad reaching advantages are documented in the social, emotional, physical and academic spheres (Chawla, 2007; Malone, 2008; Maynard, 2007; Munoz, 2009; O’Brien & Murray, 2007; Rickinson et al., 2004). However, evidence has amassed confirming our children are missing out on direct experiences with the outdoors. Consequently a disconnection from nature is apparent in children today (Kellert, 2012; Louv, 2005; 2011).

2.1.1 Nature disconnection.

Nature disconnection is distinct across various aspects of children’s lives including, family time, unstructured play, social interactions, non-formal education and formal education (Bentsen, et al., 2010; Lloyd & Gray, 2014). Greater awareness of the
nature disconnect has led to its increasing prevalence in all manner of research, publications and media. In his popular books Louv (2005) coined the phrase, \textit{nature deficit disorder}, to describe “the human cost of alienation from nature” (p. 36). While not a medical diagnosis the term however encapsulates an emerging trend. The deficit from not coming into contact with nature can change lifestyles, the behaviour of people, cause depression and impact on social issues. An Australian national study found that one in 20 children never leave their homes to play (Laird, McFarland-Piazza & Allen, 2014). Additionally, one in four Australian children has never climbed a tree (Planet Ark, 2012). These concerning facts reflect the indoor lifestyles evident in modern times where electronic screen time and indoor activities are predominant. Children today have fewer opportunities to spend time in nature compared to 20-30 years ago (Laird et al., 2014). Outdoor experiences are rapidly decreasing for a myriad of reasons such as urban design issues, less unstructured free time and the dominance of screens for all measure of activities (Derr & Lance, 2012; Gray & Martin, 2012; Loebach & Gilliland, 2016; Orr, 2004; Sobel, 1996).

Diminished outdoor exploration is being compounded by the fact parental concerns of safety are reducing children’s opportunities to explore their local area (Derr & Lance, 2012; Dolan, 2015; Loebach & Gilliland, 2016). Children no longer independently access natural spaces easily. Researchers have found traffic levels and the necessity to cross roads decreases the amount of green spaces children can access unsupervised (Loebach & Gilliland, 2016; Munoz, 2009). Therefore, children are severely limited to which areas they can visit. Munoz (2009) argues “Contemporary children’s geographies are seen to be changing – moving away from time spent in unsupervised outdoor play and towards an adult controlled use of the outdoors” (p. 20). As such, parents are expressing an unprecedented element of control over their children’s access of the outdoors.

Herbert (2008) in a report compiled for The United National Educational, Scientific and Cultural Organisation (UNESCO) asserts “In less hurried and fearful times, playing unsupervised outdoors, exploring nature, climbing trees and collecting natural objects were all regarded as ‘play’” (p. 65). Nature disconnection is therefore a by-product of the era we live in. Loebach and Gilliland (2016) recognise, “It is imperative that we examine the contemporary child neighborhood relationship, and
the contextual factors that can support or increase children’s local activity” (p. 3). Essentially, a lack of time spent in the outdoors can be overcome by making green spaces available to children to allow for a nature connection to manifest (Townsend & Weerasuriya, 2010). Spending time in the outdoors can be the catalyst to allow for a nature connection to develop in children.

2.1.2 Nature connection.

Throughout history humans have had an intimate relationship with nature and an innate tendency to be connected to the natural world (Kellert, 2012; Keniger et al., 2013; Wilson, 1984). Humans are predisposed to develop bonds to the places we experience in our lives. Kellert (2012) believes “Humanity is the product of its evolved relationship to nature, countless yesterdays of ongoing interaction and experience of the natural world” (p. ix). Interactions with the natural world can occur in a plethora of ways formal and informal, planned and unplanned and in a range of settings, places and spaces.

Developing a sense of awe and wonder becomes apparent in children who are in contact with the natural world (Carson, 1962; Kahn & Kellert, 2002; Wilson, 1984). Humans form relationships with places they visit and live in. Birrell (2005) affirms “People and places sometimes pass through our lives leaving little or great imprint. In any case, relationships do not just ‘happen’ – they must be created” (p. 53). Spending time in the outdoors is known to develop, nurture and foster our bonds with the natural world. Sobel (1996) postulates the importance for children to “have an opportunity to bond with the natural world, to learn to love it, before being asked to heal its wounds” (p. 10). Forming connections with the natural world in childhood holds ramifications for the future. Derr and Lance (2012) state “a growing body of research suggests that these early connections to nature are significant in fostering later stewardship and care toward the environment” (p. 117). Consequently, an early connection to the natural world is an important aspect of developing an environmentally conscious lifestyle.

When children develop inter-relationships with places they develop a deep concern for their environment (Chawla, 2007; Sobel, 1996; Wilson, 1984). This concern can
lead to an increased engagement in sustainable practices throughout their lives. Chawla (2007) developed the “Positive interaction cycle of accessibility, mobility and engagement with the environment” (p. 155), where identified factors combine to motivate individuals to develop environmental knowledge and competence. The cycle was adapted by Malone (2012) to demonstrate environmental knowledge and place attachment that can enable children to become active environmental change agents. This is presented as Figure 2.1: Positive interactive cycle of accessibility, mobility and engagement with environment leading to environmental change agency.

![Figure 2.1: Positive interactive cycle of accessibility, mobility and engagement with environment leading to environmental change agency](image)


Schools and the areas immediately surrounding them are familiar to children. Therefore, they are an ideal resource to connect children to the outdoors. Kellert (2012) argues “When children feel familiar and secure in the places they encounter, they are far more likely to access, engage and experience nature than if these places seem strange and unknown” (p. 138). Recess and lunch breaks enhance outdoor skills, relationships and connections (Miles, 2013). However, the advantages of utilising the playground should not be limited only to break times. From a historical perspective (Waite, 2010a) explains “…learning outside a classroom is how most
people learned world-wide” (p. 111). Research is emerging to support the advantages of including the outdoors within the formal curriculum.

2.2 Existing research to support learning outside the classroom.

Learning outside the classroom has become increasingly visible over recent years in educational research (Joyce, 2012). Small case studies as well as broad reaching comparative statistical research have been completed in the area. Bentsen et al. (2010) acknowledge “The interest in links between nature, schools, and learning has resulted in research exploring the potential for and benefits of engaging children with ‘the outdoor classroom’ within an educational setting” (p. 3). Research has occurred across academic, physical, play, affective domains and in relation to a connection to nature. Formative research works in this emerging field are the American Institutes for Research (2005); Bentsen, Mygind and Randrup (2009); Bentsen (2012); Dillon, Morris, Reid, Rickinson & Scott (2005); Lovell, O’Brien and Owen (2010); Mannion, et al. (2015); Mannion, Sankey, Doyle and Mattu, 2006; Munoz (2009); O’Brien and Murray (2006); Rickinson et al. (2004) and the American State Education and Environment Roundtable (SEER) reports (1995; 2005). Pivotal to the research within a primary school context are those containing information regarding children’s academic learning growth.

2.2.1 Academic learning gain.

The attainment of oral language skills and vocabulary holds ramifications throughout children’s academic learning progress. Interacting with peers is a key component of children’s language development as it involves communicating with more proficient language users (Bruner, 1983; Dickinson, & Tabors, 2001; Kennedy, 2001). Children develop oral language skills through direct experiences, informal situations and social interactions with their peers. In the outdoors opportunities to engage in spontaneous talk, which assumes a role in the development of descriptive language and communication, occur frequently (Kennedy, 2001; Knight, 2009; O’Brien & Murray, 2006). Language gain is apparent across various subject areas depending on the stimulus provided. The outdoors provides a catalyst for children to attain environmental specific vocabulary and allows children the opportunity to gain
language to talk about environmental concerns more openly (Mannion et al., 2006). However, there is a significant gap in knowledge regarding how the vocabulary development actually occurs.

Children who completed regular udeskole outdoor learning sessions in Denmark have been noted to obtain consistent academic gain, across the subjects taught outdoors (Bentsen, 2012). In small case studies standardised testing of children who completed ongoing place-based education programs in the United States of America were reported to have attained improvements across the curriculum (Sobel, 2004). While these case studies provide evidence to promote outdoor learning, they lack substantial academic robustness, as they use largely subjective qualitative teacher driven data. Therefore, more in depth research into place-based education is required to solidify the claim that these programs enhance academic learning. The SEER (2005) report utilised children in Grades Two – Five across 40 Californian schools in a comparative study to determine 42% of children completing outdoor lessons achieved scores significantly higher in reading, math, language and spelling, than control students learning only indoors. Additionally, the SEER (2005) report specifically highlights the following literacy gains:

- In 95% of the language assessments, treatment students scored as well or significantly higher than control students.
- In 97.5% of the spelling assessments, treatment students scored as well or significantly higher than control students.
- In 100% of the reading assessments, treatment students scored as well or better than control students (p. 22).

Experiences outdoors have been noted to specifically assist in the development of science and geography learning. Access to natural spaces, involving ‘loose parts’ (Nicholson, 1972) promoted the development of specific science knowledge in an American nature play project conducted by Moore (2014) using 11 separate case study locations. The large-scale SEER (2005) comparative study utilised over 3000 children’s standardised tests over a five year period to find that science scores were raised by 27% when children completed outdoor environmental education. Additionally, the SEER (2005) report highlights outdoor trips, learning in local
environments and school gardens contribute to scientific knowledge. It can be argued that not all areas of science can be covered outdoors and significant indoor teaching is required. There is emergent research in geography using the concept of direct experiences. Dolan (2015) outlines how outdoor learning improves geographical understandings for children. Furthermore, she believes incorporating children’s own geography into their outdoor learning maximises the achievement of outcomes.

2.2.2 Physical development.

The outdoors offers significant opportunities to further children’s physical development. Being outside and enabling children to move freely, allows for activity and play which produces feelings of enjoyment and satisfaction (Thompson, Boddy, Stein, Whear, Barton, & Depledge, 2011). Natural spaces offer unstructured environments that enable a vast array of different types of physical skills to develop. Fjørtoft (2001) asserts, “Natural environments represent dynamic and rough playscapes that challenge motor activity in children” (p. 111). Furthermore, natural spaces encourage children to use different muscle groups (Groves & McNish, 2011) as they explore and cover the range of terrains that can only be experienced in the outdoors. When children play in the outdoors Fjørtoft (2001) explains the landscape can have a “functional impact on children’s behavior and play performance” (p. 115). The physical challenges prevalent in outdoor play allow children to develop confidence. This can be linked to more general feelings of competence and to a willingness to take risks in their thinking and learning across all aspects of their lives (Maynard, 2007).

Essentially, the outdoor environment encourages physical activity that would not occur indoors due to the differences in space available to children. Lovell (cited in Munoz, 2009) used pedometers to find that on Forest School days children were more active than on days spent indoors. A Danish case study (Mygind, 2007) involving one class of children showed significantly higher levels of physical activity among the pupils during outdoor learning days compared to their ‘normal’ indoor school day. There is a growing body of literature emerging regarding children’s physical skills as a result of spending time in the outdoors. Fjørtoft (2001) completed a comparative study of children who participated in play within natural play spaces.
compared to those in traditional formally constructed playgrounds and found increases in balance, coordination and awareness of their own body in relation to mastering skills in the physical environment. Additionally, Fjørtoft (2001) found “the motor fitness tests showed a general tendency that the children using the forest as a play scape performed better in motor skills than the children on the traditional playground” and these “children became strikingly better at mastering a rugged ground and unstructured landscape” (p. 115). However, the research aligning the apparent growth in physical skills against curriculum does not provide the evidence that outdoor teaching contributes significantly to physical education mandated outcomes. Natural environments present opportunity that the sanitised structured playgrounds do not and in turn enable the development of a great range of skills that children do not gain in the more structured aspects of their lives. Research on the development of physical skills outdoors is closely linked to the benefits of natural play.

2.2.3 Benefits of natural play.

Outdoor programs in schools often involve natural play as an integral component. Studies have found creativity and imagination are developed during outdoor play (Groves & McNish, 2011; Munoz, 2009; O’Brien & Murray, 2006). The ethos of natural play is defined by Moore (2014) as a “freedom of expression and creativity in spaces that allow children to work together using close-at-hand materials to create new things and to shape new meanings to places already inhabited” (p. 6). In the outdoors, children use their imaginations to adapt spaces and materials to fulfil roles in their creative play. Derr and Lance (2012) argue when immersed in natural play there is the opportunity to engage with “…many of the loose parts children desire, including such natural elements as sand, sticks, rocks, berries, or feathers” and as such “Bushes become rocket ships and boulders become king’s chairs” (p. 118). Natural spaces offer choices for play which enable different imaginations, personalities and play styles to flourish (Fjørtoft, 2001; Groves & McNish, 2011).

Opportunities for children to engage in their individual style of play emerge in the outdoors as a result of the flexible and largely unstructured often changing landscape. Moore (2014) acknowledges nature play offers children “opportunities for
enhanced social interaction as well as solitude, where needed” (p. 22). Interactions occur between children as they play, make constructions and observe the natural world. Moore (2014) realises “Circles of shrubs create intimate “refuges” where children can escape, relax, socialise in small groups, or otherwise interact with the natural environment and each other” (p. 60). Children can effectively design and adapt play spaces to suit their ever changing social needs. By choosing to manipulate the outdoor environment to suit their personality and friendships, children have great freedom to convey messages, express feelings, make social contact, experience turn taking, negotiating and listening to others (Knight, 2009).

The self-directed essence of outdoor play (Knight, 2009) allows children to develop skills specific to their interests and talents. Consequently, children engage in activities and increasingly complex tasks with greater enjoyment and proficiency (Knight, 2009). Furthermore, children become resilient to situations out of their control. They use problem-solving skills (O’Brien & Murray, 2006) to complete tasks and acquire real world knowledge through their experiences in the natural environment. Outdoor play provides a valuable contribution to the development of children. Of significant importance, outdoor play has also been linked to the development of children’s understanding of risk (Gill, 2007; Knight, 2009, 2011; Munoz, 2009). A significant barrier is the perceived danger from parents regarding risk, this is a significant barrier to implementing outdoor learning. Furthermore, Knight (2009) suggests the physical competencies children gain in outdoor play lead them into undertaking risky play and experimenting with their physical ability.

2.2.4 Risk benefit.

Play England (2014) theorise “…‘risk’ refers to the probability, likelihood or chance of an adverse outcome” (p.1). Risks are a part of everyday life and consequently children require the skills to learn to deal with them. Madge and Barker (2007) acknowledge risk taking is a vital ingredient in children’s lives and realise “patterns established in one sphere of life are likely to be transferred to others” (p. 2). Arguments to support risk taking in childhood are: helping children learn to manage risk, promoting reasonable risk taking in order to prevent them finding greater unmanaged risks for themselves and the building of personality traits such as
resilience (Gill, 2007). Developing resilience is particularly vital for children as it equips them with skills to be in greater control of their own lives. The NSW Department of Education and Communities (DEC) acknowledge the importance of supporting children to build resilience, which in turn will “… contribute positively to collective wellbeing and an inclusive community” (p. 9). Children who have reliable resilience strategies are able to cope with uncertain situations, challenges and the potential obstacles they may encounter.

Children require exposure to challenges to prepare them for a variety of situations in their lives. Exposure to risk taking in childhood prepares them for when large potential risks are predominant in the teenage years such as driving, drugs and alcohol. Learning outdoors in the school environment provides an opportunity for children to take risks in a safe and supported location. Risky play in a natural environment allows children to jump on logs or boulders, climb trees and play in water. These are perceived risks, as the likelihood of injury is low, due to supervision and careful choice of location. A barrier for implementing risk taking is that many instances teachers are unsure of how to implement it into their academic programs. However, Moore (2014) recognises:

> Children need to take charge of their own experience, to be challenged intellectually, socially, and physically. They require opportunities for risk-taking and daring, for construction, experimentation, and problem solving. Conducted in nature, these activities develop teamwork and a sense of responsibility, and can increase environmental awareness (p. 22).

Visiting places often, the rules, routines, boundaries, supervision, and repetition of activities common in school outdoor programs allow children to develop strategies to approach risk (O’Brien & Murray, 2006). Outdoor learning affords children the opportunity to be challenged, take incremental risks and complete activities with their peers. Play England (2014) published the “Risk Benefit Assessment Form” to promote risk taking in educational settings. Uneven ground to walk on, unbalanced logs, pointy sticks or a shallow water crossing are all categorised as “risk-benefit”. These risk-benefits are common in natural play and contribute towards the holistic
development of children completing outdoor learning. There are a plethora of affective outcomes that also contribute to the holistic development of children who complete outdoor learning programs.

2.2.5 Affective outcomes.

Improvement of affective outcomes as a result of outdoor learning are evident in a growing body of scholarly works (Beames et al., 2012; Derr & Lance, 2012; Dolan, 2015; Kellert, 2012; Knight, 2009; Laird et al., 2014; Mannion et al., 2015; Louv, 2005; Waite, Rutter, Fowle & Edwards-Jones, 2015b; Sobel, 2004). Largely based on qualitative data they have all found that there are improvements in confidence, resilience, independence, leadership, social skills, motivation, concentration, behaviour and anger control.

Self-confidence is a term used to describe an individuals’ belief in their own ability. The NSW Department of Education and Communities (2015) promote the development of self-confidence within schools, they believe “Achievement contributes positively to student’s wellbeing, and it can contribute to student’s self-confidence” (p. 3) Through evaluating numerous small case studies of Forest School programs Slade et al., (2013) report self-confidence stemmed from children having freedom, time and space in the outdoors environment. These studies are mostly subjective and rely heavily on teacher generated qualitative data. Their reliability can be questioned, as the teachers are close to the subject involved. For definitive and robust evidence to be generated, research completed by academics not directly employed by the schools will need to be conducted.

Using a variety of indicators, Basile (cited in Sobel, 2004) reports that children involved in place-based outdoor programs showed an increase in higher order thinking, observation, analysis and problem solving skills. These skills enable learners to harness a deeper degree of knowledge throughout the curriculum. Additionally the ability to engage in outdoor learning creatively and independently is noted by Mannion et al., (2006) in a national Scottish review. Independence is important in childhood as it allows an ability to complete tasks without direct support. A skill that is vital for their future as adolescents and adults, when support
may not be available. Evidently play, creativity and thinking skills developed outdoors positively impact on children’s independence and hold a substantial claim to being an asset to school curriculum.

Outdoor learning is understood to enhance engagement, enjoyment and challenges for children (Mannion et al., 2015). Teachers in a Scottish national review on outdoor learning, reported green and natural places offer an 80% to 100% success rate of ‘challenge and enjoyment’ for their pupils (Mannion et al., 2015). The high percentage of children’s apparent enjoyment could be disproportional to reality, as the research was conducted with teachers who were motivated to teach outside and therefore more likely to see the positive points in out of classroom sessions. Taking into account this research was conducted with teachers who were motivated to undertake outdoor learning this to findings taken from all teachers in Scotland. Motivation and concentration during outdoor tasks for extended periods has been highlighted to improve overall learning gain in Forest School studies (Murray & O’Brien, 2005; Slade et al., 2013). While affective outcomes have been researched generally, a thorough understanding is needed to understand how these gains develop within an outdoor curriculum unit. To achieve this, holistic studies combining all aspects of a children’s academic and affective learning need to be completed, including connection to nature components.

2.2.6 Connection to nature.

Benefits of a connection to nature in childhood have been widely reported in scholarly literature (Chawla, 2007; Malone; 2008; Maynard, 2007; Munoz, 2009; O’Brien & Murray; 2007; Rickinson et al., 2004; SEER, 1995; 2005). The school based evidence is largely qualitative and derived from small scale case studies centered on play rather than curriculum focused programs. Munoz (2009) argues that a greater engagement with the outdoors throughout the primary school curriculum can bring benefits associated with a greater connection with nature. However, there is limited research regarding how connection to nature within the curriculum is of benefit to children or if in fact it occurs at all.
2.2.7 Further research directions.

There is a need for further research in reference to immersive outdoor learning experiences. Lynch (2002) has argued that it is important to quantify the extent and benefits of outdoor learning as many studies are purely qualitative. Hence, further mixed-method and quantitative studies are needed within the primary school setting. Many of the reported benefits of the outdoors in primary schools are located in studies that focus on environmental education or outdoor education rather than specifically outdoor learning. Whilst these are important related fields of education they are not, by definition, outdoor learning. Clear understandings of the interrelated fields concerned need to be established to locate and highlight the point of difference, outdoor learning holds, within existing educational theory. In turn research specific to outdoor learning in an Australian context can then occur.

2.3 Situating outdoor learning within the context of existing educational paradigms.

Outdoor learning is emerging as an educational trend in primary schools (Beames & Ross, 2010; Bentsen, 2012; Lloyd & Gray, 2014; Moses, 2014; Tanzer, 2011; Waite et al., 2015b). Outdoor learning has its origins within the established traditions of environmental education and outdoor education. Hill (2013) believes outdoor and environmental education can intersect to create innovative outdoor learning pedagogy at the juncture where these two overlapping educational fields meet. This thesis does not position itself to examine these fields in their complex entireties; yet does aim to establish how they impact on the further development of outdoor learning pedagogy.

2.3.1 Environmental education.

Environmental education was defined in the report of the first UNESCO Intergovernmental Congress on Environmental Education in 1978, known as “The Tbilisi Declaration” (UNESCO, 1978). The Tbilisi Declaration (UNESCO, 1978) proposes, throughout all forms of formal education, the development of environmental knowledge should occur in, for and about the environment. It can be
argued that environmental education has greater depth than these ideals, however at it’s very simplest the idea to educate in, for and about the environment provide an introductory understanding to the concept. As such, the goals include teaching environmental content knowledge and promoting environmentally responsible behaviour (Stevenson, Peterson, Carrier, Strnad, Bondell, Kirby-Hathaway & Moore, 2014). Environmental education, education for sustainability, sustainability education and education for sustainable development are all terms used in this field. Stevenson (2013) recognises the confusions and similarities between them as “converging and competing discourses” (p. 147). There is substantial discussion over the most relevant term within the environmental education research community (Berryman & Sauve, 2013; Le Grange, 2013; Robottom, 2013; Stevenson 2013). Altering discourses in environmental education have occurred over time (Robottom, 2013) to suit the emerging political, global, economic and educational trends. Sustainability and sustainable development have come into the forefront of the general public’s ideologies and are thus reflected in environmental education discourses. These more recent terms include action focused domains (Stevenson, Wals, Dillon & Brody, 2013). However, the core of education for sustainability, sustainability education and education for sustainable development begin with the fundamentals of environmental education. For that reason the core term environmental education is used hereafter to cover all the terminology associated within this paradigm.

The Australian Curriculum and Reporting Authority (ACARA, 2013) positions environmental education as a cross-curricula priority to be included in teaching and learning across all subject areas. However, there are challenges to incorporating environmental education in the current Australian curriculum. Teacher training, a crowded curriculum, access to information for curriculum planning and the availability of physical resources are all highlighted as barriers to implementation of environmental education in primary schools by Moses (2014). The Australian Government’s Sustainability Curriculum Framework (Department of the Environment, Water, Heritage and the Arts, 2010) aims to scaffold knowledge, action and understanding for teachers. The document assists teachers overcome barriers to implementing environmental education by providing a guide of developmentally appropriate concepts and activities. However, it should be noted
this document does not regularly appear in schools nor are teachers familiar with its’ contents.

Environmental education has traditionally focused on activities to encourage both ecological understanding and environmental stewardship (Stevenson et al., 2014). Environmental education activities include environmental audits, studying or comparing environments, gathering scientific information and researching environmental issues. It is argued knowledge of the environment alone does not translate to environmentally conscious behaviour (Gray & Birrell, 2015; Kellert, 2012). To this end outdoor practical components, such as vegetable gardening are included in environmental education activities. However, the point of difference between environmental education and outdoor learning is that outdoor learning has immersion in nature rather than environmental knowledge or practice at its core.

2.3.2 Outdoor education.
Outdoor education follows the experiential philosophy of learning by doing (Blenkinsop, Telford & Morse, 2016; Dickson, Gray & Hayllar, 2005; Priest & Gass, 2005). Learners gain an understanding of cause and effect from observations, and then apply them to new situations. Priest and Gass (2005) acknowledge “Experiential theories of learning are holistic, incorporating cognition and behaviour with conscious perceptions and reflections on experience” (p. 15). Outdoor education experiences take place primarily, yet not exclusively, in the outdoors. Sub categories of outdoor education include, outdoor recreation, adventure education and adventure experiences. Typical pursuits include bushwalking, ropes courses, cross-country skiing or longer expedition style journeys (Laird et al., 2014; Lugg & Martin, 2001; Nicol, 2014; Thorburn & Allison, 2010). Resilience, team building, personal growth and self-awareness are key growth areas of outdoor education. A focus on building relationships with others and the environment is central to activities (Dickson et al., 2005; Priest & Gass, 2005; Wattchow & Brown, 2011). It can be argued that in reality focus is on the delivery of curriculum outcomes rather than the affective learning growth presented in the literature.
In Australian high schools, outdoor education can be implemented as a standalone subject or as part of health and is commonly taught in the physical education subject (Gray & Martin, 2012). However, in primary schools outdoor education in any format is less common and is not a compulsory component. A conceptualisation of outdoor education is provided by ACARA (2012) as part of the Health and Physical Education ‘Overview’:

Outdoor education engages students in practical and active learning experiences in natural environments and settings typically beyond the school boundary. In these environments, students develop knowledge, understanding and skills to move safely and competently while valuing a positive relationship with and promoting the sustainable use of these environments. Elements of learning in outdoor education will draw on content from across the Australian Curriculum: Foundations to Year 10, including Health and Physical Education, Geography and Science. The primary content drawn from Health and Physical Education will be in the areas of outdoor recreation and the influence of connection to place and communities on health and wellbeing (p. 11).

 Reported barriers to the implementation of outdoor education are: costs, travel time, specialist skills required, perceived risk of physical harm, risk aversion and time away from the school curriculum (Beames et al., 2012; Lugg & Martin, 2001; Thorburn & Allison, 2010). While not insurmountable, these barriers provide curriculum issues, logistical considerations and safety concerns for teachers. The version of outdoor education involving travelling to outdoor centres to experience the specialist skill sets of instructors and associated activities according to Thorburn & Allison (2010) “appears disassociated from current school-based learning contexts and lacking in transferable value” (p. 101). Additionally, Nicol (2014) believes, “outdoor education practice is often characterised by either having fun in the outdoors or being little more than curriculum enrichment focusing on personal and social relations” (p. 453). The traditional conceptualisation of outdoor education omits many current curriculum mandates and considerations. Consequently Nicol (2014) believes outdoor education “must be criticized as being rather modest and
unambitious in its current form” (p. 453). Therefore outdoor education is experiencing pedagogical changes for the improvement of student outcomes.

Gray and Martin (2012) argue “As Australia heads into a new era of implementing a National Curriculum, the place of outdoor education in Australian schools is under question” (p. 39). To address these challenges Gray and Martin (2012) acknowledge sustainability will become an important aspect of outdoor education. The period of curriculum renewal in Australia means it is an ideal time to adapt outdoor education to the changing needs of students and schools. Polley and Pill (2012) uphold that “The Australian curriculum is changing, and with it the role and place of outdoor education in Australia may change too” (p. 1). Outdoor learning is one way to reconceptualise outdoor education in the primary school sector. The point of difference between current understandings of outdoor education and outdoor learning is the primary focal point. Whilst outdoor education centres on adventurous pursuits, outdoor learning emphasises connection to nature and immersion in natural spaces. However, outdoor education’s history, tradition, pedagogy and practice have strong influences over emerging outdoor learning theory.

2.3.3 Outdoor learning at the juncture of environmental and outdoor education.

It is recognised there are substantial similarities in the three interrelated fields of environmental education, outdoor education and outdoor learning. This thesis does not position itself in either environmental or outdoor education, rather at the juncture of the two. First and foremost, outdoor learning offers an opportunity to complete activities outside the classroom. Beames et al., (2012) espouse, “We are not saying ‘good bye’ to our classrooms; we are opening up to the world outside!” (p. xi). The simplest definition of outdoor learning is learning that normally takes place in a classroom, occurs in an outdoor environment. Proponents of this field believe that learning does not need to be contained within four walls (Ellison, 2013). Learning happens in a variety of places outside of the traditional classroom according to the localised context. Higgins (1995) summarised outdoor learning as education ‘in’ the outdoors (outdoor activities), ‘through’ the outdoors (personal and social development) and ‘about’ the outdoors (environmental education).
Australian research concerned with learning outside the classroom largely refers to outdoor education in the secondary school sector (Gray & Martin, 2012; Lugg & Martin, 2001; Polley & Pill, 2012). While there is a degree of relevance to primary schools, realistically the pragmatics of secondary and primary schools are markedly different. Research in the Australian primary sector has focused on place-based education in environmental education, rather than outdoor learning (Miles, 2013; Moses, 2014; Somerville & Green, 2011; Stevenson et al., 2013). Lessons learned from these scholarly works provide the cultural contextual foundation for further empirical place-based outdoor learning pedagogical models to emerge. However, to ascertain a foundation for primary school outdoor learning, an international perspective is paramount and as of yet there is limited research conducted in an Australian context.

### 2.4 Existing models of learning outside the classroom.

Internationally, research has investigated the extent, nature and scope of different forms of learning outside the classroom. Outdoor learning is localised learning and as Bentsen et al., (2009) state “…different outdoor traditions have emerged not only in relation to specific geographical landscapes, but also as a consequence of particular circumstances: cultural, social, economic, demographic and political contexts” (p. 30). Each outdoor learning model is specific to its location. Modes of teaching vary between countries and even more subtle differences occur regionally within nations. Salient research studies have occurred in England (Dillon et al., 2005; O’Brien & Murray, 2007; Lovell et al., 2010; Slade et al., 2013; Waite, 2010a; Waite, 2010b), New Zealand (Cosgriff et al., 2012; Zink & Boyes, 2006), Scotland (Mannion et al., 2006; Mannion et al., 2015) and the United States (Howley, Howley, Camper & Perko, 2011; Tanzer, 2011; Smith, 2002). While the international body of evidence is substantial the specific curriculum details offer marginal cultural and curriculum relevance to an Australian context.

The Scandinavian countries contribute a unique perspective on outdoor learning. Lifestyles in this region often focus on the importance of nature areas, hiking, fishing and exploring the wild (Sandseter, Little & Wyver, 2012). The educational initiatives across Scandinavia reflect the notion of an outdoor life and its associated values and
as such Bentsen et al., (2009) states “In Denmark, Norway and Sweden outdoor recreation and outdoor education is often referred to as friluftsliv (literally meaning free/open-air life)” (p. 30). The Scandinavian cultures reflect a relaxed attitude towards risk which is reflected in outdoor programs promoting risky play (Sandseter et al., 2012; Williams-Siefredsen, 2012). Development of physical skills within their teaching programs allows constant and incremental advancements in risk-taking behaviours.

However, most of the research is not reported in English making the interpretations of the programs difficult (Bentsen et al., 2009; O’Brien & Murray, 2007). Therefore, programs and evaluative reports written in English from Denmark (Bentsen et al., 2010; Bentsen, 2012; Mygind, 2007), Norway (Sandsetter et al., 2012) and Sweden (Wilhelmsson, Ottander & Lidestav, 2012) all contribute valuable pragmatic knowledge regarding outdoor learning to this study. Knowledge of which does not exist in other areas of the world with such prevalence.

Collectively, the international perspectives from England, Scotland, the United States of America and Scandinavia, illustrate that educational contexts and practices differ markedly from country to country. Outdoor learning is specific to local areas and their intricate details and as Bentsen et al., (2010) suggest “it is important to be aware of local, regional, and national contexts, and of how curriculum and outdoor educational practices are framed and shaped by cultural, social, political, and geographical factors” (p. 2). Findings from international programs are determined by the location where they are delivered. However, aspects of these programs can be transferred to devise a best practice Australian outdoor learning model.

A recent literature scan for specific programs most pertinent, and transferrable to Australian primary schools, includes information on: Forest Schools in England, the Curriculum for Excellence in Scotland, Denmark’s udeskole and place-based programs in the United States of America. These highlighted programs are deemed relevant to the existing curriculum, schools and pedagogy currently prevalent in Australia. Fundamentally, they offer the most valuable contributions to enable a unique Australian place-based outdoor learning pedagogy to emerge. However, it must be noted that not all components of these initiatives are relevant to an
international context such as cutting down trees for carving in England Forest Schools. The aspects that are described in this thesis are the ones pragmatically suited to an Australian context.

2.4.1 Forest Schools in the United Kingdom.

Forest Schools in England involve children engaging in nature based activities, in both pre-school and primary school sectors. They have an emphasis on experiential learning and self-directed play in supportive natural environments (Knight, 2009; Maynard, 2007; O’Brien & Murray, 2007). The philosophy of Forest Schools is to encourage and inspire individuals through positive experiences and participation in engaging, motivating and achievable activities (Knight, 2009). Woodland environments close to schools are used to develop personal, social and emotional skills, such as independence, self-discovery, confidence and communication skills (O’Brien & Murray, 2007).

Programs are developed by Forest School trained leaders and function within or completely external to the regular school curriculum (Knight, 2009). While teachers attend with their class, they might not be the leader facilitating the session. Children complete half-day sessions over one term of a school year, which may be repeated in different year levels as a child progresses through a school (Knight, 2009; Warden, 2010). Sessions focus largely on the development of affective learning outcomes. Warden (2010) has highlighted it is ‘unfortunate’ that Forest School sessions are often pre-planned by the adults and stresses the child focused direction of all activities. While this may be appropriate in an early years setting, in an Australian primary school this would be problematic. For this reason there is a need look beyond the Forest School example to one clearly driven by curriculum.

2.4.2 Udeskole in Denmark.

In Denmark, the word udeskole has a strong resonance to ‘outdoor learning’ as it literally means ‘out of school’ (Beames et al., 2012). Common settings include the schoolyard, natural environments or museums. Bentsen et al., (2009) promote “Udeskole is a term that not only refers to a method of teaching but also a movement
to redefine school, and a theory about how education should be viewed: an understanding that education exists in a social, economical, political and geographical context” (p. 32). There is a strong emphasis on place-based progressive pedagogy and constructivist traditions in udeskole (Bentsen et al., 2009). Children are viewed as actively contributing to the construction of curriculum based knowledge.

Udeskole is further characterised by the fact that compulsory curriculum educational activities take place outside the school buildings. Lessons are based on specific curriculum subject areas using a cross-disciplinary method. The approach is often to work with the content of an academic subject and make the concept real or concrete to facilitate learning and understanding (Bentsen et al., 2009; Bentsen et al., 2010). It is reported 28% of Danish schools practice udeskole with children between 7–16 years in weekly or bi-weekly sessions (Bentsen et al., 2009; Bentsen et al., 2010). Udeskole is not mentioned in the Danish national curriculum, but outdoor learning is indirectly included within the overall aims and directly in some of the subject content (Bentsen, 2012). However, outdoor learning is directly included in the Scottish curriculum and therefore offers a unique mandated model of incorporating the outdoors into teaching programs.

2.4.3 The Scottish Curriculum for Excellence.

The Scottish ‘Curriculum for Excellence’ (Learning and Teaching Scotland, 2010) allows a teacher some autonomy to develop integrated learning programs. Teachers can include the outdoors in their learning programs to suit the location of their schools and needs of their children. Thornburn and Allison (2013) verify that the Curriculum for Excellence “outlines a policy vision of a more integrated and holistic form of education; a commitment which offers considerable prospects for outdoor learning in schools” (p. 418). There is an expectation children will receive opportunities to learn outdoors within subject areas and acquire interdisciplinary skills (Mannion et al., 2015). In Scotland, outdoor learning occurs in diverse areas including school-grounds, local areas and daylong trips as well as more outdoor education based residential centres.
During the last decade, outdoor learning in Scotland has moved from being an extra-curricula activity into a mainstream core curricula position (Mannion et al., 2015). Therefore, the Curriculum for Excellence offers an example of where outdoor learning features in curriculum policy. The main findings from the Scottish Natural Heritage Commissioned Report, “Teaching, learning, and play in the outdoors: a survey of school and pre-school provision in Scotland” (Mannion et al., 2015) were:

- Outdoor provision increased learner engagement and enhanced educational experience.
- Schools increased their average outdoor durations through more teacher-led events in school grounds and more residential experiences.
- Schools are beginning to use local areas more, enabling them to provide low-cost, teacher-led provisions outdoor.
- Outdoor provisions helped address aspects of the Curriculum for Excellence including in Health and Wellbeing and Sustainable Development (p. ii).

The Curriculum for Excellence provides an example of curriculum policy that encouraged the use of localised outdoor environments. The Mannion, Sankey, Doyle and Mattu (2007) report “Young people’s interaction with natural heritage through outdoor learning” occurred before the curriculum policy was introduced and found “relatively few outdoor learning events took place in local areas (p. 3). A fact that changed after The Curriculum for Excellence was implemented. While the inclusion within curriculum documents for outdoor teaching is steadfast, there remains a knowledge gap for teachers as to a suitable pedagogy to practically do this. Place-based programs and pedagogy contribute a vast depth of knowledge about how local environments can be embedded in learning units.

2.4.4 Place-based learning programs.

Place-based education programs are occurring in various locations around the world (Howley et al., 2011; Miles, 2013; Moses, 2014; Somerville & Green, 2011; Smith, 2002; Sobel, 2004; Tanzer, 2011). Place-based learning occurs in local environments and focuses on the social, cultural, economic, political and natural contexts (Smith, 2002). Delivery, content and focus depend on where the learning program is situated.
These education programs have common characteristics yet as Smith (2002) argues “Place-based education does not come prepackaged. Its curriculum and activities arise from the individual qualities of specific communities and the creative impulses of particular teachers and students” (p. 31). When implementing place-based education, what works in one community and place does not necessarily work in another.

Three different interpretations of place-based programs from the United States of America are presented as examples. One country was chosen for all three examples so the context remains relatively constant. Howley et al., (2011) researched one whole school site where place-based education had occurred for over a decade. They found key indicators for its success were principal leadership, interaction with residents, a variety of experiences and that the school culture invested in student inquiry. Activities the students completed included regular local projects to encourage action in their local community, knowledge sharing at a school fair and a trip to an overseas country (Howley et al.). The activities in this program were not limited to the natural environment.

Smith (2002) researched a school where place-based education involved the students visiting a local wetland regularly over the course of a year. One class completed water sampling to contribute to the local authority’s knowledge of the designated waterway. While at the wetland with their regular teachers, children engaged in exploration and incidental learning opportunities (Smith, 2002). An in-depth knowledge was gained about the specific waterway and skills in water testing were proficient, as a result of this initiative.

Place-based summer youth day programs located at a science centre were examined in an extensive study by Tanzer (2011). A variety of activities were researched with children across the primary school years, who participated in science and writing tasks at, or close to, the science centre. The activities were completed externally from the general school curriculum, teachers and school environment. Her findings report advancements in critical thinking, creative expression, student engagement and community building (Tanzer, 2011).
The place-based education programs of Howley et al., (2011), Smith (2002) and Tanzer (2011) are representative of numerous examples utilising this pedagogy in various countries around the globe. The examples serve to highlight the different interpretations of the core principles of place-based education pedagogy, which are detailed in Section 2.5.

2.5 Place-based education.

Place-based education is not a new phenomenon. Buxton and Provenzo (2012) speculate it can be traced back to the Greek philosopher Aristotle and his notion of *topos*, which can be translated to “the study of a given place” (p. 8). There have been developments since its inception in the progressive curriculum proposed by Dewey (1938). A recent emergence of work surrounding place-based education has contributed to defining theory and practice of the pedagogy (Cameron, 2003; Casey, 1996; Derr, 2002; Gruenewald, 2003a; 2003b; 2005; Hill, 2013; Mannion & Lynch, 2016; Quay, 2013; Seddon, 1997; Sobel, 1996; 1998; 2004; Somerville, Davies, Power, Gannon & de Carteret, 2011; Wattchow & Brown, 2011). This recent research ensures there is a great depth of knowledge concerning place-based pedagogy which can be utilised as the theory and academic rigor to support outdoor learning.

2.5.1 Defining place-based pedagogy.

To define place-based pedagogy an understanding of the concept of place must first be established. Dolan (2015) defines the physical element of place as being:

> Local, immediate and concrete, such as a child’s home or his/her school and the school grounds, or places can be far away and abstract. Buildings, towns, cities and countries are all referred to as places. Place can be small as a street or as large as a continent (p. 5).

However this being said, place is a complex phenomenon encompassing more than the physical environment as places are developed as people interact with them. It is acknowledged places are socially constructed through experiences in them with
oneself and others (Dolan, 2015). People express their relationships with place in a variety of ways as a result of their experiences, background and locational variables (Cameron, 2003). Therefore, places are a construction of people, experiences, culture and environment.

Place-based pedagogies see the outdoors as a teacher, learning site and classroom. The general rationale for implementing place-based pedagogies is that we have to teach children to love the world before asking them to protect it (Sobel, 1996). Place is seen as a site of connection, belonging and an ongoing relationship that can enrich learning. Gruenewald and Smith (2008) state “Places, and our relationship with them, are worthy of our attention because places are pedagogically powerful” (p. 143). Meaningful relationships emerge when people form bonds to places over time and in a range of experiences. As such, Mannion and Lynch (2016) state “as a field, place-based education is concerned with facilitating meaningful relationships with places” (p. 88). When people develop relationships with places it can be referred to as a sense of place (Derr, 2002). A person’s sense of place is a result of their direct interactions with the physical space and the experiences they have had there. It is highly individual and specific to visited locations and local environments.

Place-based education is interdisciplinary, student centred and project based and seeks to connect learners to local environments (Dolan, 2015; Sobel, 2004). Certain academic subjects are particularly suited to teaching in the outdoors such as Geography and Science. However, not everything can be taught in place through direct contact with the natural world, many concepts require resources that the indoors provides such as the internet and books used in explicit teaching. Other concepts such as learning to read or direct instruction on how to complete mathematical algorithms require regular indoor lessons. In many instances, a combination of explicit teaching indoors and experiences in place can enhance learning.

There are multiple definitions of place-based pedagogy, which Ellison (2013) suggests is a result of the myriad of interpretations and ways to implement it at a pragmatic level, which has been exampled in Section 2.4.5 where three different programs represent varying interpretations of the place-based education concept. A
generally accepted definition, of place-based education has been provided by Sobel (2004):

Place-based education is the process of using local community an environment as the starting point to teach concepts in language arts, mathematics, social studies, science and other subjects across the curriculum. Emphasising hands-on, real-world learning experiences, this approach to education increases academic achievement, helps students develop stronger ties to their community, enhances student’s appreciation for the natural world, and creates a heightened commitment to serving as active, contributing citizens. Community vitality and environmental quality are improved through the active engagement of local citizens, community organisations, and environmental resources in the life of the school (p. 11).

Further developments to place-based education, specific to outdoor education, have been proposed (Cameron, 2003, Mannion & Lynch, 2016; Wattchow & Brown, 2011). They all argue that an awareness of place-responsiveness is paramount to programming and delivering outdoor programs.

2.5.2 Place-responsive pedagogy.

Place-responsiveness (Cameron, 2003) is an awareness that place is not passive, however it is an acknowledgement that people nurture and support a deep connection with land through their ongoing interactions with it. It has been heralded as pedagogy to sensitively plan and implement outdoor programs (Dyment & Potter, 2015; Hill & Brown, 2014; Mannion & Lynch, 2016; Wattchow & Brown, 2011). Engaging in place-responsiveness is pivotal to the adoption of place-based education in an Australian primary school setting. A teachers’ sense of place and place-responsiveness does impact the implementation of outdoor learning. If a teacher is not responsive to their local natural environment, there is a barrier to surmount for their class to be connected to nature.
Wattchow and Brown (2011) interpret place-responsiveness to include being present in and with a place, and to recognise the power of place-based stories and narratives. The emphasis on story is particularly appropriate for children where imaginative narratives and Indigenous stories are regular components of mandated curriculum. Cameron (2003) suggests that stories emerge in response to place and are devised during our interactions with place itself and with those we share the experiences. Furthermore, place-responsive planning connects children to local environments and has been shown to stimulate environmental values of care and responsibility (Hill & Brown, 2014), both of which are key ideas included in the sustainability cross-curricula perspective of the current Australian curriculum. Mannion, Fenwick, Nugent and I’Anson (2011) propose a typology for the development of educational programs in the categories of place-ambivalent, place-sensitive and place-essential. These ‘types’ are not completely distinct from each other and are best considered as a continuum of place-responsiveness. Mannion and Lynch (2016) succinctly describe place-responsive planning as:

1. **Place-ambivalence** – teaching strategies do not actively plan to take much account of the place as a contributing factor in the teaching and learning.
2. **Place-sensitive** – teaching strategies do plan to take some active account of the role the place will play in teaching and learning.
3. **Place-essential** – teaching strategies are planned so that they cannot be enacted if some specific location is not available for teaching and learning (p. 95).

These components of place-responsive pedagogy offer an anchor for devising teaching strategies to be facilitated in place-based education. Planning curriculum with place as the central vessel for learning affords children benefits of the localised environmental and cultural experiences. Waite and Pleasants (2012) espouse “places themselves are rich with culture and cultural effects need to be considered in the learning experiences engendered or promoted in them” (p. 161). Place, culture, curriculum and people in this way ensheath to create unique learning that could not occur in another place at another time. From an Australian perspective Indigenous culture is pivotal to being place-responsive. As such, Cameron (2003) recognises
place-responsiveness in Australia necessitates establishing an understanding of Aboriginal and Torres Strait Islander inhabitation and knowledge.

2.5.3 Indigenous connection to place.

In an Australian context, a place-responsive pedagogy requires establishing a deep connection to local Indigenous history, people, culture and practice. Australian Indigenous connection to the land is based on the concept of Country, where it is believed place gives and receives life – it is lived in and with, and is a living entity (Somerville, 2011). The Indigenous Australian concept of ‘Dreaming’ is about people’s origin, path and destiny (Dickson et al., 2005). Included in this concept are localised dreaming stories and associated places of significance. Cameron (2003) suggests that a deep connection with country can be enacted when dreaming stories are utilised, interacted with and listened to. Correspondingly, Sinclair (cited in Wattchow & Brown, 2011) states “Stories bring nature into culture and ascribe meaning to places, species and processes which would otherwise remain silent to the human ear” (p. 189). Therefore, Indigenous dreaming stories make ideal starting points for knowledge development in outdoor learning.

The Melbourne Declaration on the Educational Goals for Young Australians (MCEETYA, 2008) states “Active and informed citizens understand and acknowledge the value of Indigenous cultures and possess the knowledge, skills and understanding to contribute to, and benefit from, reconciliation between Indigenous and non-Indigenous Australians” (p.10). This statement leads to a practical implementation within the ACARA (2013) mandates of curriculum which quotes on its overview page “The Aboriginal and Torres Strait Islander priority provides opportunities for all learners to deepen their knowledge of Australia by engaging with the world’s oldest continuous living cultures”. Furthermore, it is mandatory to include Indigenous ways of knowing and doing in Australian primary school curriculum.

Many Australian Indigenous people are choosing to educate others about their culture in an effort to increase cultural awareness and decrease discrimination (Ellis-Smith, 2005). This assists Indigenous and non-Indigenous children to learn first-hand
the localised cultures of their area. The Australian Indigenous Education Action Plan (2010) published by the Ministerial Council for Education, Early Childhood Department and Youth Affairs (MCEECDYA) states “A sense of cultural and linguistic identity, and the active recognition and validation of Indigenous cultures by schools, is critical to student wellbeing and success at school” (p. 12). Pragmatically, Lloyd and Gray (2014) postulate Australian outdoor learning can include traditional bush crafts to develop skills across a broad range of subjects. It is in this way that cultures will not be lost, but rather will be reinvigorated. Outdoor learning within an Australian context must incorporate the local Indigenous culture, people, story and history for an authentic grounding in place.

2.5.4 Place-based education in an outdoor learning context.

Place-based education and place-responsiveness offer sound theory to drive children’s connection to the outdoors within curriculum. Furthermore, they offer the tangible pedagogical thinking required for outdoor learning curriculum programming. The substantial linkages to promoting environmental connection and an awareness of culture mean place-based education is aligned to current Australian cross-curricula priorities (2013). The interdisciplinary approach and emphasis on localised contexts are practicalities that conform to the logistics of a primary school setting.

2.6 Place-based outdoor learning theory and practice.

The following definition of place-based outdoor learning (PBOL) has been devised from the related literature presented. To devise the definition close attention was attributed to immersion in local environments to stimulate a connection to place, pedagogical approaches suitable for children in a primary school, the primary school context, Australian cultural and Indigenous perspectives and the current Australian curriculum.

PBOL promotes a change of location rather than a change of curriculum. As such, outcomes do not alter from those that would be experienced in a regular classroom; instead it is the site of learning – from a classroom to an outdoors environment that
differs (Beames et al., 2012). PBOL is not an additional component to the already crowded curriculum, rather a philosophy of teaching and an innovative method of learning for children. Activities are planned within the teacher’s general learning program, across the curriculum and consistently include an awareness of environmental and Indigenous perspectives. PBOL is seen as an approach to programming integrated curriculum activities, using alternative environments in a place-responsive manner (Mannion & Lynch, 2016).

Outdoor sessions occur each week for a duration of between one hour to the entire day depending on the location and activity being completed. Learning sessions occur in the school playground, local residential area, nearby parks, bushland, suburbs or townships. Focus is positioned on revisiting the same places repeatedly so children form a lasting connection (Kellert, 2012; Sobel, 1996; Wattchow & Brown, 2011). PBOL occurs in authentic environments that could not be transported to other locations. Classroom teachers deliver outdoor sessions with assistance from other educational professionals where appropriate. Constructivist theories of learning encourage the children to be active learners in their development of knowledge. The social, direct experiences that occur in the outdoors aim to stimulate an interest and engagement in formal indoor learning tasks. Learning can be transferred between the outdoor and indoor learning environment.

A transfer of learning within PBOL is defined as when past experiences affect learning in a new situation (Brown, 2010). For example the children may learn about the water cycle in the classroom and transfer this knowledge to the playground where they need to find authentic water sources. There is also recognition of a transfer of learning from outside to inside, for example using playful learning or direct experiences as the basis of formal writing tasks. It is acknowledged that transfer is a contested term in outdoor education (Brown, 2010) due to issues with the transfer of metaphors, decontextualisation of knowledge and learners’ familiarity with problem domains. The focus of a transfer of learning in PBOL is a pragmatic way to term how learning content is moved seamlessly between environments. A transfer of curriculum is considered in the planning of PBOL lesson sequences and the development of affective outcomes for children is considered throughout all
planning, delivery and evaluation. A transfer of learning is applicable to all the core principles of PBOL.

This study proposes PBOL can be articulated by expanding the core principles of:

- Contributing learning theories
- Direct and immersive experiences
- Localised learning environments
- Classroom teachers deliver sessions
- Interdisciplinary curriculum learning
- Development of affective outcomes.

Each core principle will be dealt with individually in the following sections to further expand understandings of the emergent outdoor learning pedagogy. The contributing pedagogical theories that are utilised by teachers in their planning and delivery of curriculum are initially presented.

2.6.1 Contributing learning theories.

The constructivist paradigm reasons, sense is made of the world through an individual’s own encounters and actions (Adams, 2006; Ari, Kizilaslan Tunçer & Demir, 2016; Bruner, 1983; Cakir, 2008; Leather, 2013; Quay, 2003; Ultanir, 2012). Broadly speaking people construct knowledge out of their active learning experiences. Constructivist pedagogy emphasises action, self-direction and problem solving (Adams, 2006; Cakir, 2008; Singh, 2011). Learners utilise the foundation of their previous experiences as a basis for new knowledge.

Vygotsky’s (1978) social constructivist theory incorporates the role of people and culture in the development of understandings (Costantino, 2008). Paramount to this theory is the social nature of learning and the importance of interactions with others. Additionally, knowledge acquisition through language use and the importance of learning through play are seen as vital elements (Dolan, 2015; Dowdell, Gray & Malone, 2011; Elliot, 2013; Hartmeyer & Mygind, 2015; Quigley, 2014; Rios & Brewer, 2014). Teachers in social constructivist theory are seen as a guide,
facilitator, and co-explorer; their primary role encourages learners to question, challenge and formulate their own ideas, opinions and conclusions.

Authentic learning (Newmann, 1991; Newmann & Associates, 1996; Newmann, Marks & Gamoran, 1996) is a constructivist learning theory with an emphasis on real life experiences. It promotes exploration, discovery and meaningful construction of concepts in real world contexts. Authentic learning theory recognises the importance of prior knowledge, knowledge in context and meaningful engagement (Hornstra, van der Veen, Peetsma & Volman, 2015; NSW Department of Education and Training, 2003; Quigley, 2014). Higher-order thinking, deep knowledge, substantive conversation and connections to the world beyond the classroom are the cornerstone ideas it promotes.

Dewey (1938) is seen as the “parent” (Priest & Gass, 2005) of modern experiential learning. This theory recognises knowledge is constructed in social contexts where students are engaged as active learners, rather than passive recipients of knowledge (Costantino, 2008; Quay, 2003). Dewey’s work continues to permeate current theory (Quay & Seaman, 2013) and be relevant in continued educational reforms. The importance of Dewey for outdoor educators and the implication of experiential learning cycles are explored by Ord and Leather (2011). These cycles lead participants through a range of stages to develop direct experiences into concrete learning. Kolb’s (1984) experiential learning cycle encompasses concrete experiences, observation and reflection, formation of abstract concepts and testing ideas in new situations. This cycle encourages learners to construct their own meaning and knowledge from personal experiences. In outdoor learning, these occur in direct and immersive environments.

2.6.2 Direct and immersive experiences.

Outdoor learning follows the guiding principle that if we want people to live well in this world, they need to be educated in this world (Orr, 2004). This means our gardens, green-spaces, local business and towns. Outdoor learning (Orr, 1993) emphasises a deep love and affection for the planet through immersion in the outdoors. When children are provided with an opportunity to develop a sense of
wonder (Carson, 1962) then rapid advancements can be made in developing ecological understanding.

Tooth and Renshaw (2009) see outdoor learning as encouraging children to “Experience and appreciate the special characteristics of the natural environments; real life learning – learning activities based on real places, real issues, and authentic tasks” (p. 4). Hence, they believe outdoor learning is real learning, grounded in the environments of children’s everyday lives. It provides children with an opportunity to experience the interdisciplinary nature of the real world through the locations around them (Dolan, 2015). Learning in the outdoors is a holistic way of educating children. As such, it is acknowledged by Humberstone and Stan (2012), that “learning in the outdoors, like learning more generally, does not occur in isolation” (p. 183). Children are immersed in the out-of-doors environment and learning is specific to the context where it occurs.

2.6.3 Localised learning environments.

Children in the primary years of schooling should be given the opportunity to spend time exploring the nearby world and knowing their place (Sobel, 1996). Outdoor learning is localised learning. Casey (1996) argues “to live is to live locally, and to know is first of all to know the places one is in” (p. 18). As such, children’s learning should occur where activities are relevant to their daily lives. Beames et al., (2012) propose the four ‘zones’ of outdoor learning and argue it should occur in the local environments of the first two zones, as this is most contextualised to children’s lives. It is argued in Australia distances are large and short bus trips will be required to visit local areas, especially in regional areas. The zones are defined as:

- Zone one: school grounds
- Zone two: local neighborhoods which can be explored on foot or by using public transport
- Zone three: day trips that require group transport some distance from the school and are normally conducted by external providers
- Zone four: residential outdoor centres for overnight experiences that are located further away from the school (p. 6).
Using the school’s grounds and the local neighborhood means the act of taking children outside does not involve transport nor added extra expense (Dolan, 2015; Mannion et al., 2015). Hence, outdoor learning is accessible for all as there can be little to no cost involved. The Scottish outdoor learning review reports 52% of all out-of-doors learning occurred in school grounds (Mannion et al., 2015) as it is logistically practical. Additionally, completing outdoor learning on school grounds means there is minimal disruption to the regular timetabling of a primary school, ensuring regular learning and lesson continuation (Beames et al., 2012).

Taking children to places far from schools, on excursions to unfamiliar environments, outdoor centres or museums, has unquestionable benefits. However, until children have an understanding of the local environment, this is at the expense of authentic local learning (Sobel, 1996). Furthermore, Beames et al., (2012) argue “Organising trips to far away places without first having an understanding and appreciation of those places that are closer to home needs to be carefully considered” (p. 6). Therefore, outdoor learning firmly contends positioning visited places near the school and in locations close to where the children actually live. In this way they develop relationships with the places closest to their daily lives.

2.6.4. Classroom teachers deliver sessions.

Relationships with people and place are central to outdoor learning. Classroom teachers report an increased bond and deeper relationships with their students after completing outdoor experiences (Wattchow & Brown, 2011). In outdoor learning it is the classroom teacher who develops a relationship with the children, rather than an external facilitator, as they are the ones to deliver sessions. Teachers are reported by Waite (2010a) to value the outdoor environment strongly as they have the “chance to observe the whole child in contrast to their more narrowly-focused teaching role within the classroom” (p. 120). Not all teachers possess the inclination to teach in the natural environments and are therefore unlikely to see the positive results of relationship building when outside the classroom, as they themselves may be uncomfortable in the outdoors.
Reflecting on their own practice when external facilitators were utilised, Wattchow and Brown (2011) assert “The role of the normal teacher (in this case me) was marginalised. The instructor was the expert and it was they who developed relationships with their group rather than the person who would have an ongoing relationship with them” (p. 124). While there is a place for experts delivering specific sessions, facilitation of outdoor learning is primarily the role of the classroom teacher. As teachers deliver outdoor learning the programming becomes part of their standard interdisciplinary classroom teaching and learning program.

2.6.5. Interdisciplinary curriculum learning.

There is an increased call for creativity in education by policy-makers in many parts of the world (Blamires & Peterson, 2014). This has provided opportunities for teachers to approach traditional curriculum with new perspectives. Research has detailed increasing opportunities to include interdisciplinary outdoor learning within the formal school curriculum (Bentsen et al., 2010; Dolan, 2015; Waite et al., 2015b). Teachers may not have the freedom to deliver an interdisciplinary curriculum at their school, which poses an issue for implementing outdoor learning. However, Scanlon (1998) stated learning in the outdoors was achievable in primary schools due to established organisational structures. Contributing factors include: children have one main teacher, a high degree of parent input and teacher/parent trust exists, pre-planning for outdoor experiences can be intensive as the class work together all day and the integrated nature of the curriculum allows outdoor experiences to be cross-curricula (Scanlon, 1998).

Additionally, Grunewald (2003b) acknowledges implementing outdoor learning can be problematic:

Because the structures and processes of schooling are based on institutional patterns of isolating teachers and students from places outside school, one can claim that schools limit experience and perception; in other words, by regulating our geographical experience, schools potentially stunt human development as they
help construct our lack of awareness of, our lack of connection to, and our lack of appreciation for places (p. 625).

Structures within primary schools largely revolve around academic policy and its requirements. The plethora of outcomes needing to be covered within the school curriculum creates pressures for teachers who wish to implement outdoor learning (Dolan, 2015; Lloyd & Gray, 2014; Waite et al., 2015b, Wilson & Powell, 2013). The crowded curriculum creates a timetabling dilemma for educators and for some schools this could mean a barrier to stop the implementation of outdoor learning.

Additionally, Lloyd & Gray (2014) posit “There is no doubt that curriculum pressures, educational reform, systemic education, globalising forces and international perspectives are limiting the implementation of outdoor environmental education” (p. 4). Furthermore, the blurred distinction between ‘play’ and ‘work’, where playful learning is not seen as valuable lesson time is recognised as an obstacle for out-of-doors sessions (Waite, 2010a). In playful learning the environment and its possibilities are directed by the child. They can engage alone or with others. The space becomes one where the children can explore their interest through playful engagement on tasks (Broadhead & Burt, 2012). A natural environment can become a learning tool in, as the structures are flexible according to the interests of individual children. Playful learning allows children to use their imaginations, create and practice vocabulary in an informal setting. Within the early childhood sector it is recognised that both unstructured play and playful learning prepare children for the entrance to school (Hirsh-Pasek, Michnick, Berk & Singer, 2009). The justification that outdoor play is relevant as school work for primary school children is not commonly noted in relevant literature. Therefore, playful learning has sizable barriers to implementation in primary schools due to curriculum pressures.

However, outdoor learning aims to overcome these contentious issues by offering an outcome based, curriculum model. As such, outdoor learning steadfastly promotes the completion of content centric outcomes. Beames et al., (2012) have stipulated it is not the content that changes it is the context where it occurs. Outdoor learning curriculum aims to cover the same learning outcomes as would be covered inside the
classroom. Considering the place-responsiveness typology (Mannion & Lynch, 2016), outdoor learning would position itself in the place-sensitive to place-essential spectrum. This positioning allows for curriculum content to be covered, yet also promotes learning which is specifically related to outdoor locations and is directed by specific places.

Beames and Ross (2010) postulate in the outdoors “the learning is often inherently cross-curricular and situated, as much of what a child encounters in the ‘real world’ cannot be considered in isolation from the often fragmented and decontextualised subject areas presented in the curriculum” (p. 98). Outdoor learning allows children to cover curriculum content in an authentic context, one that is not bounded by subject areas but rather occurs across them.

2.7 Conclusion.

There are a myriad of advantages established when children spend time in the outdoor environments. Recognising places are a primary artifact of peoples’ interactions with them, suggesting a need for a more active role for schools in their study, care and creation (Gruenewald, 2003b). Connection to the outdoors can occur in a myriad of ways within primary schools. Specifically, this thesis contributes original work to how the outdoors can enrich children’s learning in a curriculum program. Previous place-based and place-responsive theory is acknowledged to deepen existing and propose new understandings at the intersection between environmental and outdoor education. The study builds upon the work of past research, to establish best practice PBOL pedagogy for an Australian primary school context.

This thesis recognises the need for a greater number of rigorous in-depth studies on outdoor learning in school grounds and localised settings, as there are few studies that have looked in detail at how outdoor learning in school grounds/community settings brings about benefits in student’s learning (Rickinson et al., 2004). Additionally, the thesis notes previous research reports on academic, physical, play, risk taking, connection to nature and affective outcomes. The limited research regarding programs that report across the academic, affective outcomes and
connection to nature components is recognised. By conducting an in-depth case study on one class’s outdoor learning program enables research to occur concurrently across multiple domains.
Chapter 3: Methodology and Methods.

3.1 Introduction.

3.2 Position of the researcher.

3.3 Theoretical framework.
  3.3.1 Epistemology.
  3.3.2 Theoretical perspective.
  3.3.3 Research methodology.

3.4 Research with children.
  3.4.1 Children as active agents in research.
  3.4.2 Children’s level of participation.
  3.4.3 The Mosaic Approach.

3.5 Convergent mixed method design.

3.6 Data analysis and emergent themes.
  3.6.1 Curriculum and engagement.
  3.6.2 Wellbeing.
  3.6.3 Making connections.

3.7 Case study documentation.
3.8 Ethical considerations.

3.9 Data collection methods.

3.9.1 Visual methods.

3.9.2 Work samples.

3.9.3 Observations.

3.9.4 Semi-formal interviews.

3.9.5 Connection to Nature Index (CNI).

3.9.6 School academic data.

3.9.7 General school data.

3.1 Introduction.

The Methodology and Methods chapter presents the theoretical framework, methodology and methods utilised to research outdoor learning pedagogy. The theoretical framework is situated in an interpretive social constructivism paradigm and a case study methodology was adopted. Mixed-method data collection occurred using a child-friendly ‘mosaic approach’ (Clark, 2004), where multiple data sources were utilised to elicit information from the children and teacher involved. Methods used to engage the children in research included semi-formal interviews, photographs taken by the children, observations, work samples and analysis of academic data.

A Year One class (n=27) participated in the case study for a full academic school year. In Australia, a school year consists of four terms of approximately 10 weeks duration each. Children were aged five or six at the commencement of the academic year. Two teachers co-taught the class in a job share situation, and I was one of the teachers. Each teacher worked a five-day fortnight over a ten day cycle throughout the year.

The preparation phase for outdoor learning sessions occurred in Term 1. In keeping with a child-centred approach, consent was sought from each child. The children were involved in preparation tasks for outdoor learning sessions. During this time informed consent was also gained from the children’s parents/guardians and educators. Parent/guardian information sessions were held to further inform them of
the research study. All concerned were oriented to the child-friendly research methods that the children would be involved in and introduced to my role of ‘investigator’, when in the outdoors.

During Terms 2 – 4 the outdoor learning program was implemented. Lessons and outcomes that would generally be conducted inside were taught outside. Corresponding follow-up activities were completed inside the classroom. There was formal research conducted at every outdoor session utilising the child-friendly methods. Classroom observations occurred when there was a significant event or activity pertaining to the case study. Ongoing data analysis and a reflexive blog were completed to aid the constant refinement of pedagogy.

The case study design involved obtaining data from the whole class. Eight focus children were involved in additional research tasks. An overview of the data collected appears in Table 3.1 Data collection organisation.

Table 3.1 Data collection organisation.

<table>
<thead>
<tr>
<th>Data collection organisation</th>
<th>Whole Class</th>
<th>Focus Children</th>
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<tbody>
<tr>
<td>Academic data</td>
<td></td>
<td>Semi formal interviews</td>
</tr>
<tr>
<td>School based records (Behaviour data)</td>
<td>Visual Methods (Photo elicitation)</td>
<td></td>
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<tr>
<td>Connection to nature (Questionnaire)</td>
<td>Connection to nature (Photo elicitation)</td>
<td></td>
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<tr>
<td>General observations</td>
<td>Structured observations (Including use of body worn video cameras)</td>
<td></td>
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<tr>
<td></td>
<td>Work samples</td>
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<td></td>
<td>School based records (School reports)</td>
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</tbody>
</table>

3.2 Position of the researcher.

In this case study I had dual roles, as part-time classroom teacher and researcher. My role in the outdoor learning sessions was as a participant observer. Throughout the research process I was a ‘passionate participant’ (Denzin & Lincoln, 2000; Guba & Lincoln, 1994). At the time of the case study I had been devising outdoor learning curriculum in a primary school setting for eight years and teaching for approximately
fifteen years. Additionally, my qualifications of a Graduate Certificate in Outdoor Education, Masters of Environment (Education for Sustainability) and Forest Schools Instructor Certification impacted on my understandings of place-based outdoor learning pedagogy. My pro-environmental values, lifelong history of outdoor pursuits and teaching background influenced the research. Goodyear, Barela and Jewiss (2014, p. xx) acknowledge the “personality factor” where researchers personally care about the evaluations and findings of their research. I acknowledge my values, background, teaching role and relationships with the children intertwined the research with my “personality factor”. As such, for the case study additional reflexivity, bias and validity considerations were applied within an ethical framework.

First person narrative is used to articulate my position in the research. The other classroom teacher is referred to under the pseudonym of ‘Annie’ throughout the case study documentation. When referring to situations where both Annie and I were involved, the terms ‘we’, ‘both teachers’ or ‘the class teachers’ are utilised. Indigenous education staff were consulted when devising and implementing activities involving local story and ‘Betty’ was their team leader. ‘Elizabeth’ was the education officer at Bundanon who was involved in the planning and delivery of the activities there. The school’s teacher educator was also present during indoor sessions and ensured school based data was ethically collected and analysed.

Annie was new to utilising place-based outdoor learning pedagogy. Having taught in classrooms for ten years, she was re-entering teaching after an extended break raising her children. I mentored her throughout the year in outdoor learning pedagogical knowledge and practices. Annie taught all the outdoor sessions, while I was present in the role of a researcher and as a participant observer. The case study was conducted during the second year Annie and I worked together job-sharing a Year 1 class. The relationship we had was one of utmost professional collegiality and collaborative dialogue. Communication between us occurred daily in person, email and via phone. Often we would work together in a team-teaching situation. The children were used to us both being at school at the same time. There was a clear distinction during outdoor learning sessions that Annie was the teacher and had control of all behaviour, first aid, management and teaching. I was present as an
observer and children knew at this time my role was the ‘investigator’. When additional adult assistance for supervision, an emergency or first aid was needed, I would complete the task.

Reflexivity forces us to come to terms with multiple roles assumed as a researcher (Denzin & Lincoln, 2000). Furthermore, reflexive case study researchers constantly self-critique their cultural bias, and the ethical issues (Yin, 2011). As such, I wrote weekly blog entries that explicitly mentioned any influences impacting on observational findings. The blog was not a data collection method, rather a way of recording my weekly field notes. School educators and thesis supervisors had access to this blog to provide feedback throughout data collection and analysis. Additionally, ongoing communication with Annie and the school’s teacher educator ensured I was aware of my subjectivity and bias throughout. As teachers we were conscious of reflexivity during planning, teaching and ongoing program evaluation. We became self-aware reflexive teachers who could, as Wilson (2013) suggests, “stand back and examine the underlying beliefs and values which are informing decision-making and actions in classroom situations” (p.16). This reflexivity enabled the pedagogy and curriculum to evolve over the case study duration as we constantly reflected upon, evaluated and refined outdoor learning understandings.

3.3 Theoretical framework.

The theoretical framework of a research project provides the philosophical basis upon which all research takes place. All components related to an investigation are devised in relation to the chosen theoretical framework. Informed by a social constructivist interpretive paradigm, I examined PBOL pedagogy within a school context. This paradigm recognises understandings build on people’s past experiences and all reality is socially constructed (Creswell, 2013). Therefore, working in this framework enabled the children’s understanding of experiences and personal insights to unfold. Interpretivism/symbolic interactionism was adopted to make sense of the interactions and shared meanings (Crotty, 1998).

Case study methodology was nominated as it complements the epistemological and theoretical perspectives (Crotty, 1998; 2003). This methodology was chosen because
it best suited the research questions, school context and the small sample size of one class. This case study aligns itself within Crotty’s (1998) research framework and is grounded in an interpretive paradigm. Within the interpretive paradigm, reality is viewed as subjective and constructed through interaction with the world (Crotty, 1998; Scotland, 2012). Knowledge is constructed through the interactions of people and their world in a social context. Interpretive methodology is focused on understanding phenomenon from an individual’s perspective, while recognising that the investigator and investigated are inextricably linked and the findings are literally created as the investigation proceeds (Guba & Lincoln, 1994). New layers of understanding are discovered as phenomena are described within the research between participant and researcher. The interpretive methods allow for insights into behaviours and people’s perspective on events without dominating the participants’ actions (Scotland, 2012). Table 3.2 Theoretical framework provides an overview of the four elements of the research design.

Table 3.2 Theoretical framework.

<table>
<thead>
<tr>
<th>Theoretical framework</th>
<th>Epistemology</th>
<th>Social Constructivism</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Theoretical perspectives</strong></td>
<td>Interpretivism/Symbolic interactionism</td>
<td></td>
</tr>
<tr>
<td><strong>Research methodology</strong></td>
<td>Case study</td>
<td></td>
</tr>
<tr>
<td><strong>Data collection methods</strong></td>
<td>Mixed-method mosaic approach</td>
<td>(Semi-formal interviews, photographs, work samples, observations, academic data)</td>
</tr>
</tbody>
</table>

3.3.1 Epistemology.

The epistemological view of social constructivism focuses on an individual’s learning because of their interactions in a group (Costantino, 2008; Lotz-Sisitka, Fein & Ketlhoilwe, 2013). This was deemed the most suited paradigm for the case study, as the interactions of all involved were the foundation of meaning making of the phenomenon under review. In social constructivism a researcher’s understanding is co-constructed with that of the participants, within the research setting through their mutual interactions (Creswell, 2013). Adopting this paradigm ensures an interactive element to gathering information.
Vygotsky (1978) emphasises the role of social interaction in the development of cognition. The focus is on generating meaning from the interactions within groups of people. Within the case study the conversations between the researcher and participant as well as the constant interactions between the children were the basis of meaning making. These were recorded in semi formal interviews, field notes and in video footage.

Researchers within the social constructivism paradigm focus on gaining an understanding of participants’ interpretations of phenomenon (Crotty, 1998). People’s realities are shaped depending on their unique individual experiences, perspectives and interpretations and these are consequently varied for each person (Lundholm, Hopwood & Rickinson, 2013). Furthermore, Wals and Dillon (2013) recognise there is not one single truth. Presenting the meaning of social reality from the perspective of multiple participants is pivotal to research in this paradigm (Yin, 2011). This case study utilises a variety of children’s experiences to develop deep and rich understandings. Interpretations of events by the teachers also enabled further insights into PBOL to unfold.

In social constructivism, individuals seek to understand the world where they live and work, in naturalistic authentic environments (Costantino, 2008; Creswell, 2013; 2014; Denzin & Lincoln, 2000). Accordingly, all research in this case study occurred in outdoor learning sessions or during class time. The research allowed children to make sense of the phenomenon, occurring in familiar environments, through language, kinesthetically and socially (Wals & Dillon, 2013) in ways suited to their stages of development. The methodology and child-friendly (Clark, 2004) methods of this case study meant the children were active, resourceful and reflective participants in the construction of meaning. Findings of research within social constructivism frameworks often provide the direct quotes from participants to support inferences drawn from the data (Wiersma, 1991; Stainback & Stainback, 1984). In this case study the presentation of results reflects this reporting structure and the voice of the participants is strongly represented.
3.3.2 Theoretical Perspective.

This research positions itself in the interpretive paradigm, which proposes meaning as local, discovered and experienced as Bhattacharya (2008) recognises “The emphasis is on sense making, description, and detail” (p. 5). In this paradigm it is believed reality and interpretations are socially constructed to create meaning. The focus is on understanding and the reconstruction of experiences (Guba & Lincoln, 1994). Within the case study the methods employed directly elicit meaning from the children’s interpretation of events. Kyburz-Gaber (2013) argues “In the strict sense, every oral and written expression of human activities has to be seen as a social construction” (p. 25). Equal significance in this paradigm is attributed to the informal and formal oral interactions and to all variety of written data. The importance of qualitative and quantitative data to generate a chain of evidence is recognised by Guba and Lincoln (1994).

Symbolic interactionism is the theoretical perspective that influences this study, historically it can be traced back to the 19th Century (Denzin, 2008). It is a prominent interpretive perspective that helps us understand groups’ and individuals’ actions within their settings (Bhattacharya, 2008; Yin, 2011). Essential tenets of symbolic interactionism are people interpreting meaning of objects and actions, making meaning from social interactions and the interpretation of meaning being an interactive process by the people involved (Blumer, 1986; Gray, 2014). Symbolic interactionism notes that people will interpret the physical structures they encounter in an individual way depending on their own personal beliefs and experiences. Blumer (1986) argues that factors such as social position, social pressures will affect an individuals’ interpretation of phenomenon.

The methods utilised in this case study aimed to gain maximum insights into PBOL. To achieve this, the children interpreted the outdoor learning program using various child-friendly qualitative methods guided by the mosaic approach (Clark, 2004; 2010). While the teachers also engaged in constant dialogue to increase their understanding of outdoor learning. Integrating the quantitative academic and behaviour data in these discussions was vital, as the whole child’s development in a
school context incorporates qualitative observation, academic data and behavioural records.

3.3.3 Research Methodology.

Case study methodology was selected due to its focus on understanding the dynamics within a single setting (Yin, 1994) and that the research to be completed was with a small sample size (Timmons & Cairns, 2010; Yin, 2011). In this study the setting was one school and the sample size was a one class cohort. By selecting a case study methodology the data collected from the small sample size could be extensive (Creswell, 2013), as multiple methods of data collection are encouraged. Additionally, dedication to one cohort of children for an entire academic school year enabled complex understandings to be developed.

In this case study purposeful sampling was utilised to select the cohort involved. As Mills et al. (2010) espouse “Sampling in case study research is largely purposeful, that is, it includes the selection of information-rich cases for an in-depth study” (p. 3). The class selected was deemed to be a typical sample of a cohort of children in the region where the case study was conducted. Additionally, the eight focus children were purposefully selected as they were deemed to be representative of the selected cohort (Wilson, 2013). Criteria for selection were based on their academic abilities, cultural, family and various demographic factors.

In addition, the ability of a case study to be completed in the environment where it occurs (Gillham, 2000) was beneficial to answering the research questions. Case study methodology constructs knowledge and understanding in natural settings. Specifically, this research was completed within the school playground or other educational settings as the outdoor program occurred. Gillham (2000) recognises “The naturalistic style of case study research makes it particularly appropriate to study human phenomena, and what it means to be human in the real world ‘as it happens’ ” (p. 2). Case studies are empirical inquiries into real-life, contemporary phenomena in which multiple sources of evidence can be used (Yin, 2009). The methodology is aligned to Yin’s (1994) case study criteria:
• Establishing a theoretical basis and case study protocol,
• Ensuring a triangulation in methods and procedure,
• Designing a chain of evidence and the development of a logic of generalisation,
• Documentation of a case study research project and study report.

An exploratory case study approach (Wilson, 2013) was adopted in order to allow maximum flexibility to refine the research questions throughout. The flexibility allowed the methods and pedagogy to adapt to the needs of the children throughout. Initial fieldwork and data collection were undertaken before the hypothesis and research questions were confirmed. As Creswell (2014) suggests in constructivist research “The questions become broad and general so that the participants can construct the meaning of a situation”. Consequently, the outdoor learning curriculum and research methods were adapted to suit emerging trends throughout the case study (Mills et al., 2010). The exploratory nature of the case study also allowed the child-friendly research methods to be adapted to the maturity, ability and personality traits of the actual individuals involved.

Recent Australian research (Cumming & Nash, 2015; Kopelke, 2012; Miles, 2013; Moses, 2014) has implemented case study methodology to gain insights into children learning in outdoor and environmental education. Kyburz-Graber (2004) recognises “Case studies are useful in educational research to describe context-specific educational situations” (p. 53). Context is crucial to place-based outdoor learning as all meaning to the participants is derived from local and authentic situations. Timmons and Cairns (2010) posit “In education research, using the case study approach not only creates knowledge and understanding but also sets a standard for good teaching practices through two main means – development and implementation of policy, and gaining experience through exposure to a particular phenomenon” (p. 100). As such, it is hoped the results from this case study will be useful in driving future policy in place-based outdoor learning.

Validity of the research was ensured by a triangulation of data (Clark & Moss, 2011; Creswell, 2014; Gray, 2014; Kyburz-Graber, 2004; Yin, 2011). In qualitative
research not all collected data is equally useful, credible or legitimate. The organisation of weekly field notes, observations and work samples into initial blog entries allowed the case study data to be refined immediately. However, all collected data was stored for reference if needed at a later point of analysis. Maxwell (1992) argues that the data cannot be valid or invalid, however what is pertinent is the inferences drawn from them. In this sense validity is relative as identified in Maxwell (1992) “it is not always possible for an account to be independent of any particular perspective” (p. 284). Within the case study the collection of multiple types of data ensured increased validity through the widening of perspectives, as it allowed emergent themes to be drawn from the entire cohort of children and educators involved.

The child-friendly ‘mosaic approach’ (Clark, 2004; 2010; Clark & Moss, 2011) was adopted to promote the triangulation of data and allowed for a coherent justification of emergent themes. Thick and rich descriptions, spending a prolonged time in the field, presenting information that runs counter to the themes, peer debriefing and clarifying the researcher bias also contributed to the validity of research (Creswell, 2013; 2014).

3.4 Research with children.

Barratt-Hacking, Cutter-Mackenzie and Barratt (2013) espouse “Environmental education research involving children tends to be dominated by children as objects of research and some have argued for alternative approaches to be considered” (p. 439). The constructivist paradigm reflects a shift in educational research away from research on children to research with and by children (Barratt-Hacking et al., 2013). Constructivists argue participants should take an active role in research (Denzin & Lincoln, 2000). Emphasis in this case study is placed on listening and consulting with children to allow for their voices to be authentically heard.

3.4.1 Children as active agents in research.

The way adults view children affects the way in which they research with them (James, Jenks, & Prout, 1998). Across various fields of childhood studies, childhood
is being redefined to acknowledge that children are active agents who are capable of making and interpreting their own meaning in regards to all manner of situations. James and Prout (2015) recognise the “twentieth century is said to be ‘century of the child’” (p. 1) where the interests of the child hold a prominent place in the legal, welfare, medical and educational institutions. Furthermore, in research children can no longer be regarded as passive subjects in empirical studies.

There have been considerable shifts made to bring children’s voices into research (James & Prout, 2015; Mason & Danby, 2011), moving from a focus on the child as object to a focus on the child as a participant in research. This is encapsulated in the new sociology of childhood, which views children as competent social actors (Corsaro, 2015). Research in this paradigm adopts methods to research with children rather than research on children. Corsaro (2015) believes there are two main concepts in the new sociology of childhood. These central concepts are articulated by Truong (2015) as:

First, children are active social agents who create their own cultures and simultaneously contribute to the production of adult societies.
Second, childhood is a structural form that is socially constructed.

This constructivist model of childhood situates children as agents and learners who actively construct their social worlds (p. 27).

The new sociology of childhood calls upon adult researchers to adopt methodologies appropriate to children’s competencies. Child appropriate participation involves implementing methods that ensure they have a voice in matters that affect their lives (Hart, 1997). Child-friendly research methods occur in different levels dependent on the research project, age of the children involved and contextual factors. Educational research in an Australian context (Kopelke, 2012) has recently adopted the new sociology of childhood to determine understandings of environmental programs. However, there is limited research conducted within a primary school setting focused specifically on outdoor learning. This case study aims to meaningfully include children as participants in the research to provide initial understandings into PBOL in this context.
3.4.2 Children’s level of participation.

Children’s level of participation in research is dependent on contextual factors. There is a significant shift into listening and hearing the perspective of children in innovative ways (Christensen & James, 2008). There has been considerable thought into how children can be more active within research projects in meaningful ways. Hart (1992) posits a need for children to be involved in research projects with adults. He utilised an image of a ladder to depict levels of child participation in research. The first three rungs of the ladder: manipulation, decoration and tokenism, imply the child is not a participant in the research, rather research is being conducted on children (Hart, 1992), while the subsequent levels that increasingly engage children, are described by Hart (1992) as:

- Assigned but informed,
- Consulted but informed,
- Adult initiated – including shared decisions with children,
- Child initiated and directed,
- Child-initiated promoting shared decisions with adults (p. 8).

However, it is recognised that it is not necessary for children to always operate at the highest possible rungs on the ladder of participation (Hart, 1997). In regards to data collection and evaluation Christensen and James (2008) also stipulate children should be involved to a level of “what works for them” (p. 6). Pragmatically, research should be designed to allow children to be involved at the maximum level of their ability. During the case study, data collection with the children was consistently monitored, as it is recognised by Kim (2016) that “keeping the right balance is not always easy and requires adults to continuously reflect on their interactions with the children” (p. 3). This monitoring was made practical by the fact the researcher was their teacher and knew the ability levels of the children thoroughly.

Participation in this case study operates in the assigned but informed and consulted but informed rungs of Hart’s ladder (1992). As such, the children were assigned clear roles in the research taking photos, drawing pictures and interpreting maps. Children
were always given the choice to participate in research through a process of ongoing consent. Their participation was driven by their desire to engage in the research methods for example if they did not want to wear a body worn GoPro camera, answer interview questions or take photographs on any given day they were not forced to. In this way participation in the research methods was voluntary and authentic rather than forced and tokenistic.

Furthermore, children were consulted in semi-formal interviews, which asked their opinions about learning activities, environments, and places and encouraged to offer comment on any aspect they desired. The children’s interpretation of activities and phenomenon were analysed in an ongoing manner to ascertain their perspectives on PBOL. These perspectives enabled the pedagogy to be adapted to suit the interests, understandings and level of engagement the children articulated.

3.4.1 The Mosaic Approach.

The ‘mosaic approach’ was developed by Clark (2004) as a way of listening to the voices of children. In educational settings the mosaic approach has recently been utilised by Baird (2013) and Kingston (2016). The approach is a child-friendly method devised to encourage children’s active participation in research tasks. Essentially, the name ‘mosaic approach’ (Clark, 2004) represents the bringing together of different pieces to create an image of children’s views by incorporating a range of methods. Clark and Moss (2011) advocate the approach enables children to be seen as experts in their own lives. In this case study children took on various roles (Clark, 2010) including photographers, researchers, artists, authors, mapmakers, learners, observed participants, evaluators and interviewees.

Researchers in the mosaic approach also adopt a range of roles (Clark, 2010). My diverse roles in the case study were as author, facilitator, analyst, interviewer, observer, participant, learner, evaluator, photographer, documenter and researcher. As I was one of their teachers, the role of teacher occurred in the classroom and during planning of curriculum. Annie’s role in the mosaic approach was primarily as the teacher and to a lesser extent as interviewee, evaluator, photographer, documenter and analyst.
3.5 Convergent mixed method design.

Qualitative data is used in case study methodology to see from the inside out, from the perspective of those involved (Gillham, 2000) the purpose being to “get under the skin” (p. xx) of a group or organisation to find out what really happens. To achieve this I actively participated in listening, defined by Clark (2005) as “an active process of communication involving hearing, interpreting and constructing meanings; not limited to the spoken word, a necessary stage in participation in a) daily routines as well as in b) wider decision-making processes” (p. 491). I listened to the children and Annie to gather data on outdoor learning processes, pedagogy, experience and personal understandings.

Quantitative data extended the range of results regarding academic progress. These data are paramount as they aim to show that children spending significant time outside the classroom, progress in their attainment of mandated curriculum outcomes when measured alongside standardised testing. Academic and behavioural data collected quantified what I had learnt from other sources. Cross-referencing data, according to Gillham (2000) is part of the internal validity of a case study where “it all has to fit together and theorising (explanation) has to account for it all” (p. 86). Ongoing analysis ensured this was consistently validated to ensure accuracy.

As such, a convergent mixed method design (Creswell, 2015) was implemented to organise the chain of evidence. Data were collected simultaneously and then integrated in the ongoing interpretation (Creswell, 2014). The information was gathered in different ways, but was bearing on the same point. Using a mixed method convergent design allowed for a holistic representation of the scenario (Timmons & Cairns, 2010). Quantitative information was contextualised alongside qualitative comments from the children (Loveridge, 2010). Therefore, quantitative data were used in conjunction with the rich qualitative data in order to provide a comprehensive analysis of place-based outdoor learning curriculum.
3.6 Data analysis and emergent themes.

There was a large amount of data collected throughout the case study, to manage the varied information a consistent approach to tabling the interview transcripts, photographs and video footage was adopted. Each term a data schedule was complied to clearly show what data was collected and who is was collected from. An example, from Term 2 is included Appendix A: Data Schedule as guide to inform where the raw data originated. From week to week different information was collected with the children, this was due to the style of educational activity and was constantly being guided by the children’s attitude or mindset on the day. This required a flexibility in the research methods, while this could have been difficult to manage in this case study it was not. With many years of teaching experience I was able to adapt methods on the run and collect data efficiently. As a way of managing significant amounts of the data and to gain clarity over salient emergent themes, a weekly researcher’s blog was kept. These blog entries served as a summary and as a way of keeping initial thoughts in one central location. An example from the blog is included as Appendix B: Blog Entry. The general entry was chosen, as it does not disclose any confidential information of identity of a child. The sequential order of data analysis was:

1. Plan methods of data collection in accordance with the learning activity.
2. Collect data during sessions and after sessions across all research methods.
3. Organise collected data into the Data Schedule (Appendix A: Data Schedule).
4. Review GoPro footage, photographs and interview transcripts after session, taking notes under key themes. These were reviewed as a set on one central document. Each style of data had equal importance to the allow the children’s idea’s the same level of importance regardless of how they wanted to share it. Initially this was on blank pieces of paper and after the open coding process occurred under key themes.
5. Compile the researchers blog notes each week as an ongoing reflection on initial data analysis (Appendix B: Blog Entry).

The formal organisation of the research data into themes began with open coding (Creswell, 2013; 2014; Punch, 2009; Walliman & Buckler, 2013) which was
completed at the conclusion of the first term of outdoor learning. First level analysis allowed me to focus on central themes in the data. Consequently, this enabled a refinement of the research methods that were utilised over the remainder of the case study. Core phenomena (Creswell, 2013; Punch, 2009) were identified which became the focus for subsequent data collection. The most salient research methods the refinements assisted were semi-formal interviews and structured observations. These methods were subsequently organised into areas where there was either an initial theme or a research gap. The categories the first level analysis resulted in were:

- Enjoyment of nature,
- Empathy to creatures,
- Oneness with nature,
- Sense of responsibility,
- Kinaesthetic (touching, manipulating or feeling nature),
- Making connections,
- Relationships,
- Curriculum attainment.

On completion of the case study data collection phase I engaged a process of pattern coding (Punch, 2009). All formats of data were analysed manually and sorted into groupings based on common factors. Matrixes were used to organise transcribed interviews into emerging themes (Wilson, 2013). At first, tentative codes (Creswell, 2013) where attributed to match segments of texts, groupings of photographs and work samples. These codes represented areas I expected to find before the study, surprising information and conceptually interesting phenomenon (Creswell, 2013). Data were integrated and inductive emergent themes were generated to reflect this new information. The pattern coding went further to allow for interpreting, interconnecting and conceptualisation of data (Punch, 2009). At this point emergent themes were formed for use in the remainder of the data analysis. They were defined as:
• Curriculum and engagement,
• Wellbeing,
• Making connections.

3.6.1 Curriculum and engagement.

This theme focuses on the progression of academic attainment within the curriculum. How and what children learnt as a result of being outside is central to all understandings in this area. By uncovering the strengths and weaknesses of academic learning it allowed for the constant refinement of teaching processes in the place-based outdoor learning pedagogy. Engagement on tasks ensured constant learning acquisition in the outdoors. Sub categories in this emergent theme presented in the results chapters are: behaviours for learning, playful learning, focus on learning intention, taking risks in learning, transfer of learning and incidental learning.

3.6.2 Wellbeing.

Areas of children’s overall wellbeing promoted by place-based outdoor learning included the perceived growth noted in teacher observations of positive relationships, independence and responsibility, resilience, risky play and self-regulation. Parental involvement leading to a heightened sense of community also became apparent as the case study progressed. Overall, this theme emerged most predominantly in observations and semi-formal interviews.

3.6.3 Making connections.

Through outdoor learning children began to make connections to various aspects of their lived experience and known understandings. Over the duration of the case study children made connections to past events, places they had visited before, animals and environmentally conscious actions. A heightened sense of cultural awareness and an ability to link visited places to known Indigenous stories, became apparent. Children began to look into the intricate details of local environments and could name, describe or experience nature with forever increasing clarity. This theme emerged in all aspects of the data collected.
3.7 Case study documentation.

The implementation of a convergent mixed-method design attributes importance to both quantitative and qualitative data (Creswell, 2014). A holistic approach to the documentation allowed a complete picture of the program to unfold. The case study is documented in a synopsis chapter (Chapter 5) and three results chapters (Chapters 6-8).

Inclusion of a synopsis chapter allows for the analysis of academic data and behavioural records to be clearly presented. These data are conveyed using graphs, tables and written interpretations of the phenomenon. Data sets from pre and post outdoor learning depict children’s attainment levels over the duration of the year. Focus children are individually profiled with their academic growth, behavioural records, school report information and other personal impacting factors. The synopsis chapter is pivotal as it succinctly provides evidence of academic growth in accordance with school mandated standardised testing. It provides a base for the qualitative results chapters that follow.

The three results chapters each present a term of work with its associated research data. Titles of these correspond to the learning and teaching units i.e. A Journey in Place and Water, Landscapes and Schoolyard Safari. A summary of each session is provided, followed by salient findings specific to the activities and research conducted. The complete data set from each week was analysed together, initially with each component given equal importance. However, on secondary review the most salient pieces of data were chosen for further assessment. Depicted pieces of data represent the findings of the session in the most distinct, accurate and informative ways.

As such, Vignettes (Creswell, 2013) of empirical evidence are presented in the form of interview excerpts, conversations, work samples and photographs. These are provided to allow an understanding of what the session looked like, an interpretation of activities and an example of the work samples children produced. They are useful for the reader to gain a feel for the session and are to be used to introduce children, environments and activities. After sessions are reported on the emergent themes are
discussed and analysed. The results chapters conclude with key messages and adaptations made to place-based outdoor learning pedagogy.

3.8 Ethical considerations.

Ethics is intrinsic to constructivist paradigms of research (Guba & Lincoln, 1994). Throughout a research project Creswell (2014) argues “The ethical considerations that need to be anticipated are extensive, and they are reflected through the research process” (p. 92). Prior to conducting the study the University of Western Sydney Human Ethics Review requirements were fulfilled. The conditions of the National Statement of Ethical Conduct in Human Research (2007) were upheld. Ethical considerations for the study were detailed in the National Ethics Application Form. Participant information, consent forms and approval documentation is provided as Appendix C: Ethical Consent Information.

Ethical considerations involved assessing the perceived risk and benefit to participants, the relationships of those involved to the researcher, consent processes for adults and children, data collection strategies and the storage of data. It is acknowledged, there are additional ethical considerations that arise when the researcher is also the teacher of the class under examination. Punch (2009) recognises a complication is the dividing line between research data and ‘normal’ professional data. Teachers collect information and academic performance data throughout the course of their work. It is for this reason a clear understanding of the data to be collected was outlined before commencing the study. The teacher educator working in the school consistently checked the collection of academic data to ensure there was no researcher bias.

Issues of competence, power and vulnerability (Punch, 2009) were considered in relation to conducting research with children. Initially, participatory consent was sought from the children by asking verbal questions and in written format using smiley faces on the Children’s Consent Form (Appendix C). In Term 1 trust was established between the children and myself in the role of ‘investigator’. Ongoing consent was a key ethical procedure during the data collection phase (Clark, 2010). At each session children were given the option to participate in the research. This
was either given verbally or by indicating a smiley face on top of the page in their ‘Nature Journal’. Research methods were adapted on the run for the children to best suit their individual preferences.

Ongoing discussions were held with the children and Annie about the purpose of the data being collected. They were informed participants throughout the data collection phase. There were no ramifications to the child if they did not want to participate in the research and dialogue only occurred with Annie when it suited her. Pseudonyms were attributed for the children and educational staff involved. The privacy and anonymity of participants was of utmost importance within this research.

3.9 Data collection methods.

The child-friendly mosaic approach (Clark, 2004; Clark & Moss, 2011) uses methods to assist children to participate in research. This approach recognises the importance of children’s perspectives about the phenomenon under review, not only those of adults, such as parents and educators.

The parents of the children in the class often voluntarily engaged in dialogue with Annie and myself regarding outdoor learning. While not directly reported on, the feedback on outdoor learning sessions they attended and effects they saw on their child was valuable. Parents offered insights and perspectives others involved could not. I recorded salient conversations via my research blog.

Annie in her role as the teacher collected school based academic data and took her own photos of sessions to be used in classroom follow-up lessons. Professional discussions occurred pre, during and post all outdoor experiences. It was this ongoing discussion between Annie and myself that enabled a constant refinement of the place-based outdoor learning pedagogy. We adapted learning theories, methods and assessments as we constantly uncovered new understandings. The information we constructed as a result of this dialogue was recorded in my research blog.
Children participated in a large range of methods in alignment with the child-friendly mosaic approach (Clark, 2004; 2010; Clark & Moss, 2011). These methods can be grouped into the following categories:

- Visual methods,
- Work samples,
- Observations,
- Semi-formal interviews,
- Connection to Nature Index,
- School academic data,
- General school data.

The methods used in each of these categories are outlined as Table 3.3 Overview of research methods. The whole class and focus children’s data collection schedule are provided as Table 3.4 Whole class data collection schedule and Table 3.5 Focus children data collection schedule.

*Table 3.3 Overview of research methods.*

<table>
<thead>
<tr>
<th>Visual Methods</th>
<th>Work Samples</th>
<th>Observations</th>
<th>Semi-formal interviews</th>
<th>Connection to Nature Index</th>
<th>School Academic Data</th>
<th>General School Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photo elicitation</td>
<td>Map-making</td>
<td>General participant observations</td>
<td>Conversational</td>
<td>Questionnaire</td>
<td>English (Running Records, Burt, Dalwood Spelling Mathematics (SENA)</td>
<td>Behaviour School reports</td>
</tr>
<tr>
<td>Paint art</td>
<td>Drawings/ artworks</td>
<td>Structured observations</td>
<td>Open ended questioning</td>
<td>Photo elicitation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nature journals</td>
<td>GoPro observations</td>
<td>Semi structured interviews</td>
<td>School reports</td>
<td></td>
<td></td>
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<tr>
<td>Curriculum work sample</td>
<td>Video recordings</td>
<td></td>
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</tbody>
</table>
Table 3.4 Whole class data collection schedule.

<table>
<thead>
<tr>
<th>Method</th>
<th>When</th>
</tr>
</thead>
<tbody>
<tr>
<td>Qualitative</td>
<td></td>
</tr>
<tr>
<td>General observations</td>
<td>Each session</td>
</tr>
<tr>
<td>Quantitative</td>
<td></td>
</tr>
<tr>
<td>Running Records</td>
<td>Term 1 and Term 4</td>
</tr>
<tr>
<td>BURT Word Recognition</td>
<td>Term 1 and Term 4</td>
</tr>
<tr>
<td>Dalwood Spelling</td>
<td>Term 1 and Term 4</td>
</tr>
<tr>
<td>Schedule of Early Numeracy Assessment (SENA)</td>
<td>Kindergarten Term 4 and Year 1 Term 4</td>
</tr>
</tbody>
</table>

Table 3.5 Focus children data collection schedule.

<table>
<thead>
<tr>
<th>Method</th>
<th>When</th>
</tr>
</thead>
<tbody>
<tr>
<td>Qualitative</td>
<td></td>
</tr>
<tr>
<td>General observations</td>
<td>Each session</td>
</tr>
<tr>
<td>Structured observations</td>
<td>2 focus children per session</td>
</tr>
<tr>
<td>Work samples</td>
<td>Each session</td>
</tr>
<tr>
<td>Semi-formal interviews</td>
<td>2 focus children per session</td>
</tr>
<tr>
<td>Photo elicitation</td>
<td>Termly</td>
</tr>
<tr>
<td>Map-making</td>
<td>End of Term 4</td>
</tr>
<tr>
<td>Quantitative</td>
<td></td>
</tr>
<tr>
<td>School reports</td>
<td>Term 2 and Term 4</td>
</tr>
</tbody>
</table>

3.9.1 Visual methods.

Photo elicitation

Photographs are particularly useful when oral semi-formal interview questions are not enough to elicit information (Yamanda-Rice, 2014), as they assist children to initiate discussion. Delamont (2012) suggests photographs allow participants to tell their stories by giving them a voice. They allow memories that may have been forgotten, to be recalled and subsequent interpretations given. Photo elicitation is where (Creswell, 2013) “participants are shown pictures (their own or those taken by the researcher) and asked by the inquirer to discuss the contents of the pictures” (p. 161). Clark (2004; 2010) uses a method titled ‘photonovela’ in her mosaic approach, where photographs taken by children are a stimulus to allow them to recreate and retell their experiences. While Truong and Mahon (2012) utilise ‘autodriven photo elicitation’ as a process of providing participants with cameras which are subsequently used to communicate ideas which they would otherwise find difficult to articulate. In an outdoor education setting Loeffler (2004) used photographs to
capture meaning and facilitate participants connections with their outdoor experiences to their everyday lives.

A modified approach to these photography methods was utilised in the case study. Focus children were provided with iPads to capture moments, experiences, environments or features. They were not ‘forced’ to take photographs if they did not want to. The choice of iPads was as a result of them being the available technology in the school. As a bonus the children were familiar with them as a learning tool so there were no barriers to them being used in outdoor learning. Focus children often shared the iPads with their friends, who also took photographs as they pleased. This was a consequence of the close relationships and children did not want their friends to miss out on taking photographs.

The iPads were used to view photographs in photo elicitation interviews. These devices were easy for the children to interact with and as Yamanda-Rice (2014) also found, they seemed to enjoy the tactile nature of swiping between photographs and being able to zoom in on features. The photographs conjured up kinaesthetic responses to textures, atmosphere and smells of their experiences (Delamont, 2012). Photographs the children chose to interpret were regularly images taken by their friends. The main emphasis was on the verbal narrative (Delamont, 2012) the children attributed to the photographs. Children spoke freely and I interrupted only when absolutely necessary, to guide the story or memory the children were sharing. Salient examples of this method were the off-site ventures to Bundanon, Nowra township and Ben’s Walk.

3.9.2 Work samples

Map-making

Map-making was used as a tool to gain insights into the children’s understanding of their learning environments (Clark, 2004; 2010; Clark & Moss 2011; Sobel, 1998). Detailed observations, video footage, photographs and field notes were taken to track the development during these experiences. Map-making activities were guided by Sobel’s (1998) text “Mapmaking with Children”. Examples in the case study were mapping the school playground, and mapping the journey to off-site locations.
**Drawings and artworks**

Drawings and artworks were used as self-reflection stimuli (Duncan & Te One, 2014; Tzibazi, 2014). They were to encourage the children to uncover details within experiences they felt were important. Kopelke (2012) found in his research “Children’s drawings provided a naturalistic way to witness children’s creative meaning making because the source of the content emerges from the child’s own thoughts, feelings and imagination” (p. 75). Curriculum focused and free choice drawings were utilised to gain insights into children’s experiences.

Photographs were taken of manipulative artworks to allow semi-formal interviews to occur conveniently. These gave children the capability to steer (Yamanda-Rice, 2014) the dialogue when they were talking with me and allowed them to remember aspects of importance (Delamont, 2012). The most salient artwork was the triptych comparing three learning environments. Children were video recorded interpreting their triptych, which was transcribed for analysis. An example is Figure 3.1: Comparing environments triptych.

**Nature journals**

All children involved had a ‘Nature Journal’ to complete reflective tasks. The children could write free choice notes at any stage in outdoor learning sessions. As Kopelke (2012) suggests the journals were utilised as “a mechanism for recording and organising experience, a tool for processing events as they occur” (p.77). Some of the children preferred to record drawings to express their ideas. Nature Journal writing was also scheduled in conjunction with the academic program. This had the dual purpose of uncovering the children’s academic understanding and also
contributing to the body of evidence surrounding perceptions regarding learning environments or experiences.

Curriculum work samples
Curriculum work samples were collected throughout the year from English, Visual Art, Science and Human Society and Its Environment (HSIE). These were used to gauge focus, engagement and understanding of curriculum outcomes.

3.9.3 Observations.
Observation is defined by Angrosino (2007) as the “act of noting a phenomenon in the field setting through the five senses of the observer, often with an instrument, and recording it for scientific purposes” (p. 53). General participant and direct structured observations in this case study involved taking notes, photographs and utilising video footage. Observations occurred in each of the outdoor learning sessions. Additional observations were completed in the classroom when I was in the role of the teacher.

General participant observations
General participant observations on the entire cohort of children were descriptive and occurred throughout the outdoor learning program. This style of observation is a method common to the interpretive paradigm (Tzibazi, 2014). A participant observer requires some participation and some observation time, yet does not neglect either one entirely (Yin, 2011). The role of the participant observer requires the inquirer to not only interview, and observe, but also collect and examine data whilst maintaining a feeling for the observation (Yin, 2011). Adherence to the protocol of Annie being the teacher-in-charge during outdoor learning sessions allowed me to be consistently in the role of participant observer. McClain and Vandermaas-Peeler (2015) used similar boundaries for a participant observer, where the primary researcher only communicated when needed and only interrupted in situations if the children were in danger.

Participant observations are recorded (Gillham, 2000) as field notes consisting of “running descriptions, things you remember, ideas and provisioned explanations, personal impressions and feelings, things to check up of find out about” (p. 54).
Often these observations allowed me to make meaning from group dynamics, behaviour of the children, their time on task and engagement levels. As such I was constructing knowledge from the social interactions of the children and their interactions with Annie.

**Structured observations**

Structured observations centred on focus children and were initially recorded as anecdotal field notes. In these observations I was as Gillham (2000) recommends “watching from the outside in a carefully timed and specified way” (p. 54). The process of refining the initial open-ended observations into a more structured approach was guided by observation schedules as proposed by Walliman and Buckler (2012).

After the first term of outdoor learning when the emergent themes were identified through a process of initial open coding (Walliman & Buckler, 2012). Subsequent observations were recorded using a formal observation instrument (Yin, 2011) under the pre-determined categories of: enjoyment of nature, making connections, empathy for creatures, relationships, Indigenous ideas, what did they touch/feel, responsibility for the environment and an “other” category. Each focus child had an average of one structured observation a month. Contributing to the observations were the photographs and video footage I took with my iPhone. Additionally, body worn GoPro video cameras were utilised in the research process.

**GoPro video cameras**

The body worn GoPro video cameras were mounted on the chest of the child being observed. Initially this approach was adopted due to the close relationship I had with the class, as the children did not behave and experience outdoor learning authentically when I was in close proximity. GoPro footage enabled observations to occur without the children being hindered by adult presence. The method was subtle and discreet allowing for maximum natural behaviour.

A trial of the GoPro cameras was conducted and data compared to sessions where they were not used. It was deemed the footage provided rich data for further analysis (Walliman & Buckler, 2012). Children’s feedback was sought about comfort and
general use of the GoPro. They gave honest feedback, noting how they were ‘hot’ when they wore them for extended periods. A subsequent procedure for utilising the technology was established to ensure comfort and high ethical protocols were consistent. From the formal introduction of the GoPro cameras, the conditions of the National Statement of Ethical Conduct in Human Research (2007) were maintained. Protocols were strictly adhered to as noted in Table 3.6 Use of GoPro cameras in observations.

After each session I reviewed footage using general and structured observation techniques. Delamont (2012) suggests “The digital texts provide multiple perspectives and multiple representations – creating a more complex research picture” (p. 325). Hence, the GoPro footage added another level of data to observations. Table 3.6 Use of GoPro cameras in observations, outlines the procedures that were put in place for this experimental method.

Table 3.6 Use of GoPro cameras in observations.

<table>
<thead>
<tr>
<th>Step</th>
<th>Process utilised with children in the case study</th>
</tr>
</thead>
</table>
| **Introduction**   | 1. I spoke to individual children about being investigators. They were shown live footage from the GoPro as they wore it. This was achieved by using an iPhone app.  
2. Children had the choice to not wear the camera during research.  
3. A trial run of the camera was completed in a session that was not used for research. The first child to wear the camera was a resilient child who had rehearsed lines such as “I am an investigator” “This is for Miss Lloyd” etc. |
| **Children’s consent** | Children’s consent was gained each time they put the camera on. They also had control over if they wanted to take the camera off or periodically turn it off.                                                                                       |
| **Child observation** | At the beginning of each session I conducted a 5-minute observation of the children wearing the GoPro. This was to ensure that they were comfortable on that particular day and for the researcher to gather more holistic data about the particular circumstances in person. Anecdotal interview questions were also asked during this time. |
| **Placement of camera** | Chest mounts were used, as they were deemed more subtle than a camera being strapped onto a child’s head. In most cases the focus child being observed wore the camera. However, at times one of their friends would wear it to gain varied footage. |
| **Pragmatic considerations** | GoPro cameras can turn themselves off. This was especially the case when the children rolled in sand or onto their chests. The children learnt to self-check to see if the record button was flashing. |
| **Reviewing footage** | Footage was reviewed the following day after the session and I took notes under the emergent themes.                                                                                                                                           |
3.9.4 Semi-formal interviews.

During sessions semi-formal interviews with children and Annie were conversational. Mostly these were based on the activity being completed at the time. Talking in conversation about something concrete can help people to better express their perspectives and it can increase their engagement level (Clark, 2004; Clark & Moss, 2011; Wilson, 2013). Wilson (2013) acknowledges it is “important to understand listening to be a process which is not limited to the spoken word” (p.74). At times I video recorded children in these conversations to enable words and actions to work together to tell the story. There were no set questions, agendas or timetables. Children were able to show initiative to direct discussion as they wished. As such, they constructed their own meaning for the situation being experienced (Barratt-Hacking et al., 2013).

All interviews with Annie were conversational and often she initiated them. The dialogue was varied and diverse. For example discussions were recorded regarding; academic learning, the completion of activities in relation to outcomes, the flow of activities from outdoor to indoor, the groupings the children chose and engagement on tasks. This information was written in my blog as raw data and utilised in the results of the case study.

Semi-formal interviews at the end of sessions were conducted with children who had been observed in structured observations. Providing children with multiple stimulus materials to engage with, allowed them to be comfortable (Clark, 2004). Often this involved them interacting with more than one piece of evidence in a single interview (e.g. drawing, photograph or natural materials). As Wilson (2013) suggests “A prime intention of data collection is that the children engage with the process, understand what is being asked of them and are given the opportunity to respond fully by whatever means seems appropriate” (p. 74). Delamont (2012) found when students did not talk much in interviews the use of digital photographs on a laptop increased their engagement in dialogue about experiences. In the early stages of the case study I found this was true and subsequently always had an iPhone, iPad or laptop with digital photographs at hand. This stimulus was used even when a photo-elicitation interview was not planned.

78
Initially, there were no set questions for any semi-formal interviews. After the first term of outdoor learning, open coding (Walliman & Buckler, 2013) was completed and a set of questions was then able to be established. Open ended questions were devised to allow formation of a more detailed understanding of the situation under the emergent themes (Yin, 2011). Questions focused the research where potential gaps in the knowledge were occurring and gave the interviews a more formal approach. They still allowed the children freedom to negotiate further conversations (Barratt-Hacking et al., 2013). A copy of these questions is included as D: Semi-formal interview questions. These interviews were recorded on my iPhone and transcribed after the sessions. All interviews were transcribed in their entirety to ensure validity (Maxwell, 1992).

3.9.5 Connection to Nature Index (CNI).

The Connection to Nature Index (CNI) was developed by Cheng (2008) as an instrument to measure children’s affective attitudes to the environment. Cheng’s (2008) doctoral thesis concluded “The connection to nature index is a promising tool to predict children’s interest in participating in nature-based activities and performing environmentally friendly practices in the future” (p. 90). The University of Essex (Bragg, Wood, Barton & Pretty, 2013) completed a review of three common connections to nature tools for the Royal Society for the Protection of Birds (RSPB). Bragg et al. (2013) concluded the CNI was the preferred tool for the majority of 7–8 year olds in the testing cohort and had the highest internal consistency. At the time of data collection there were no known equivalent tools appropriate for the slightly younger age of 6–7 years, the age the children were at implementation.

Therefore, the CNI was chosen as the quantitative nature connectedness measure for the case study. It consists of 16 items rated on a 5-point Likert scale. A refined CNI (Cheng & Monroe, 2010) was individually administered to each of the children in the case study pre and post the outdoor learning. Due to unexpected immaturity of the class I further adapted it to a 3-point Likert scale to increase the children’s understanding. The decision to proceed and administer the modified CNI was so children had valuable time to spend with me individually in the role of ‘investigator’.
before the outdoor learning program began. Occurring before any of the outdoor sessions, it allowed the children to grasp what being involved in research actually meant. Therefore, the CNI questionnaire results were not utilised as initially intended in the results.

Photo elicitation was developed alongside the existing CNI using photographs of familiar locations or situations to the children. This occurred only for focus children at the end of the outdoor learning program in Term 4. It provided a stimulus for them to talk freely about the outdoors using the common photo elicitation format.

3.9.6 School academic data.

Academic data were collected from the whole class according to the rigorous requirements of the school assessment and reporting policy. Annie and I completed these assessments as part of our regular teaching. To ensure validity the school’s teacher educator cross checked our implementation procedures, marking and analysis. Academic data collected were Running Records, Burt Word Recognition Test, Dalwood Spelling Test and the Schedule of Early Numeracy Assessment (SENA).

*Running Records*

A running record is a tool that helps teachers identify patterns in student reading behaviours. The child reads 100 words of a known leveled text while the teacher records the words read correctly, errors, self-corrections and patterns. These allow a teacher to see the strategies children use to make meaning of individual words and texts as a whole. The running record is a diagnostic tool that informs teachers of the appropriate level for students to be reading (Clay, 2005)

*Burt Word Recognition Test*

The Burt Word Recognition Test (Burt Reading Test, 1974) is a set of 110 selected words graded in order of difficulty. Student reads the words orally, pronouncing each word until 10 consecutive words are read incorrectly. The test provides evidence of a child’s letter and sound knowledge in reading.
Dalwood Spelling Test

The Dalwood Spelling Test (Dalwood Assessment Centre, 2008) is a norm-referenced test of spelling skills, administered using a standard dictated set of 100 words. It is norm referenced on over 8,400 students from schools in New South Wales metropolitan and regional areas. The test is a validated measure of students’ spelling competence and results deliver an assumed spelling age.

Schedule for Early Numeracy Assessment (SENA 1)

There are two leveled SENA (State of New South Wales through the Department of Education and Training, 2009) tests. Students in Kindergarten and Year 1 complete SENA 1. The SENA 1 assessment is a diagnostic interview and focuses on numeral identification, counting forwards and backwards, subitising, addition and subtraction, place value, multiplication and division. Teachers use the SENA 1 to make informed judgments about students’ strategies for solving number problems.

3.9.7 General school data.

Behaviour reports

The school has a structured system for the reporting of behaviour, for example, violence, swearing, non-compliance, property misuse and classroom disruptions. Incidents are classified as minor or major when recorded by the teachers. They are transferred to a computer database that organises information into classes and individuals. The database allows patterns to be tracked and teachers to monitor improvements or setbacks in student behaviours. Annie and I reviewed these data weekly, noting patterns in behaviour within the class and for individuals. The validity of the behaviour reports are routinely checked by the school’s leadership team before entry into the electronic system.

School reports

School reports from the focus children were collected to show academic achievements, work ethic, behaviour and areas of perceived need. These provide a summary of the work samples and academic data that have been collected for each of these children. Annie and I wrote these reports as a part of our teaching role, using school guidelines. Two leadership staff members from the school checked them to
ensure validity. In the case study these were reviewed to compile the focus children’s profiles.

3. 10 Conclusion.

The case study is organised within a methodological framework to encourage the participation of all involved. Dockett (2008 cited in Loveridge, 2010) proposes “when children have important roles in the interpretation of data, as well as the construction of data, it is likely that their own perspectives are reflected rather than the researchers” (p. 80). By implementing the child-friendly mosaic approach of data collection a considered approach to ensure a range of perspectives is ensured. The geographic, Indigenous, school and class contextual information are pivotal to the collected data. Specific details pertaining to the case study are presented in Chapter 4 to provide a basis of knowledge for the subsequent findings.
Chapter 4: Case Study Context.

4.1 Introduction.

4.2 Case study context.
4.2.1 Geographic context.
4.2.2 Indigenous context.
4.2.3 School situational analysis.
4.2.4 Class situational analysis.

4.3 Outdoor learning sites.
4.3.1 School playground.
4.3.2 Local block.
4.3.3 Ben’s Walk.
4.3.4 Bundanon Trust.
4.3.5 Booderee National Park.

4.4 Outdoor learning curriculum.

4.5 Pragmatic considerations.
4.5.1 Timetabling.
4.5.2 Risk assessment.
4.5.3 Providing information to parents.
4.5.4 Toileting.
4.5.5 Class off-site kit.
4.5.6 Individual outdoor learning kit.
4.5.7 Behaviour management.

4.6 Conclusion.

4.1 Introduction.

The case study context chapter presents the geographic, Indigenous, school and class details. An overview of the sites for learning is provided to allow the reader a locational understanding of the environments utilised. Curriculum details and pragmatic considerations deliver the theory presented in Chapter 2 at a practical level. This chapter contributes the contextual understandings of place, paramount to a comprehensive understanding of the results and discussion presented in Chapters 5-9.

4.2 The case study context.

Context is pivotal to case study research (Kyburz-Graber, 2004; Timmons & Cairns, 2010; Yin, 2011). Specific information on the geographic, Indigenous, school and class contexts provide a vital starting point for all subsequent understandings in this research. Locational information presented is in accordance with the ethical approvals granted for this case study.

4.2.1 Geographic context.

The case study was situated in Nowra, a regional town on the South Coast of New South Wales (NSW) 160km south of Sydney. It is the main township of the Shoalhaven region and a major service centre for the surrounding agricultural and coastal areas. The Shoalhaven River divides the twin-towns of Nowra–Bomaderry. Land surrounding the town residential area is comprised of dairy farms and bushland. A Navy base is located 10km south west of Nowra.
According to the 2011 Australian Bureau of Statistics Census (ABS, 2013) the twin-towns of Nowra–Bomaderry had a population of 34,479 people, comprised of a 6.2% Indigenous population and with 12% being born overseas. At the time Nowra had an unemployment rate of 12.9% (ABS, 2013). Overall, 6.4% of the population earned a high income, and 43.7% earned a low income (ABS, 2013). The area is considered to have a high proportion of people who are of a low socio-economic status.

4.2.2 Indigenous context.
Nowra is part of the Yuin Nation of Indigenous people, with communities located in the town and Wreck Bay. A separate language group is located north of the Shoalhaven River, known as Tharwal land. Of utmost importance was visiting each of these areas as components of the outdoor learning program. The Indigenous story most closely associated with these lands was “The Story of the Black Cockatoo”. This story tells how Nowra got its name and is from the Yuin people, where the school is located. Local Indigenous communities, culture, heritage and land were primary considerations when choosing outdoor learning sites.

4.2.3 School situational analysis.
The case study site is a Catholic Primary School attributed the pseudonym “St Francis”. A traditional structured approach to the timetable and to teaching the curriculum is administered at the school. The school has specialist music, physical education and library teachers. In the year the research was conducted it had a student enrolment of 489 students organised into 19 classes. The school population at the time was 7% Indigenous and 5% came from language backgrounds other than English. The Index of Community Socio-Educational Advantage (ICSEA) scale that includes socio-economic status, parent’s occupations and location details, rates the school as average (ACARA, 2016).

On the ICSEA rating scale, NAPLAN (National Assessment Program of Literacy and Numeracy) students’ scores are considered average when compared to ‘like schools’ (ACARA, 2016). When compared to all schools the NAPLAN scores are below the national average. As a result of these below average NAPLAN results the school receives additional school improvement funding from the Australian
Government National Partnerships scheme. This involves rigorous academic testing of children and requires additional planning by teachers. A full-time teacher educator is employed to mentor the school’s teachers in improve their professional skills.

4.2.4 Class situational analysis.

The Year One cohort involved comprised 27 children, 14 boys and 13 girls. Three Indigenous children, one child of Maori decent and a child of a Vietnamese refugee were in the class. There were no other cultural demographics in the class and all spoke English as their first language. On entering Year One, no children were diagnosed with any major medical or developmental needs. However, during the year a child was diagnosed with attention deficit hyperactivity disorder (ADHD) and began taking medication.

In August, a boy in the class ‘Finn’ was found to have a Glioblastoma multiforme, a malignant brain tumor. Considerable impact on the class, teachers and school community arose from the debilitating diagnosis. In his absence, the class were involved in a program called ‘Monkey in my chair’. A child sized toy monkey named ‘Mr Peabody’ went everywhere with the class. He features in many of the case study photographs and video footage from that time.

Important considerations for the case study class were that five children were young for their grade and turned six after beginning Year One. In turn, there were noticeable deficiencies in their ability to focus on tasks. For the most part, this was directly correlated to their developmental maturity. On entry to Year One the cohort presented with significant behavioural issues. The behaviour reports provided by the school quantify this evidence. Significant time was spent addressing the behavioural and emotional needs of the class. During the year a number of custody issues, health concerns and parental absenteeism due to Naval duties, impacted the emotional wellbeing of the class.

Academically, at the commencement of Year One there were seven children who fell below the minimum benchmark reading level. The minimum benchmark represents a level where students under it would often have a diagnosed learning difficulty.
Reading scores were representative of all subject areas where objective data were available. Subjective analysis of writing components suggested drastically lower academic results than any other area of the curriculum. These statements were fully supported and recognised by the school’s teacher educator.

Annie and I taught the class for two-and-a-half days a week each. There were two hours a week teacher’s aides support for the class throughout Terms One to Three. In Term Four this increased due to Finn’s health requirements. Physically, the class was situated in an older style small classroom with windows made of frosted glass that you could not see out. Children’s artwork, plants and outdoor learning artefacts decorated the classroom. The room was set up using groups of tables to allow for collaborative work.

Parental involvement at the beginning of the year was lower than average for the rest of the school. Only five parents attended the beginning of year information sessions and three parents inconsistently volunteered in the classroom. From the start of outdoor learning there was a significant increase in parental involvement. Often between three and eight parent helpers were present for sessions. Despite their lack of initial involvement in the class, the parents were supportive of the teachers throughout the year.

4.3 Outdoor learning sites.

Locations for outdoor learning provision required careful consideration by teachers. A range of environments types, local culture and accessibility needed to be considered. Beames et al. (2012) proposes there are zones of outdoor learning sites; school grounds, the local neighbourhood that can be reached on foot, and day excursions to places a little further away. The primary research context of this case study was the school playground. Secondary sites were the local block, Ben’s Walk, Bundanon Trust and Booderee National Park. These were chosen as it is argued regular pedagogical excursions into the field, both broaden experiences and help us to perceive what else is out there (Beames et al., 2012; Bentsen, 2012; Gruenewald, 2003a; 2003b; Sobel, 1996; 1998). Each site was chosen for pragmatic and practical
reasons. The overarching goal was to ensure children were afforded the benefit of a range of environments and access to places close to where they lived.

4.3.1 School playground.

Sessions in the school playground were held at various times throughout the day. This was dependent on the curriculum area being covered and the time allocation needed. Throughout this research there were over 30 formal and other numerous incidental sessions held in the school playground. The school playground is a large and varied site with considerable space around the classrooms, administration buildings and parish church. Entry to the school is via a large bitumen playground and there is a grassed oval at the back of the school.

At one end of the oval there is a basic natural play space. It is comprised of boulders for climbing, tree stumps and leaf litter. A key component of this space is the interpretive pathway telling ‘The Black Cockatoo’ story. This area was where the majority of the school playground sessions were held. A vegetable garden, compost heaps, worm farms and chook shed are located in the middle of the school. There is a ten-metre long serpent shaped garden bed. The serpent’s head faces Cambewarra Mountain, which is central to ‘The Black Cockatoo’ story. A yarning circle provides a space for children to sit and listen to stories or receive lessons. When appropriate children accessed this space during outdoor learning. Figure 4.1 Black Cockatoo play space presents photographs of the area in the school where the majority of outdoor learning took place.

*Figure 4.1 Black Cockatoo play space.*
4.3.2 Local block.

The term ‘local block’ is utilised for the streets in a two-kilometre radius of the school. The immediate proximity around the school offers substantial variety in terms of built and natural environment types, which enabled a range of learning experiences to occur. Within this area are the main town centre, regional hospital, residential housing and the Shoalhaven River. The streets have large verges with well-maintained pathways and there are traffic lights in the centre of town. These factors ensured the children could walk safely around the immediate area of the school. Sessions on the local block were held at various times throughout the day. This was dependent on the curriculum area being covered and the time allocation needed. There were formal research and non-researched sessions on the local block. The formal research sessions included two walks into the centre of town and one to the river.

One kilometre away from the school is the town centre of Nowra. It is comprised of three main streets of shops, medical services, offices, a movie theatre, library, art gallery, mechanics, post office, cafes and hotels. Parents worked in many of these venues and it was common to see them during outdoor learning sessions in town.

The Shoalhaven River is also within a kilometre walk from the school. Surrounding the section of the river we accessed on our town walks were parklands, boat ramps, a rowing club and houses. This river connects the majority of the off-site outdoor learning ventures as Ben’s Walk and Bundanon Trust sites are also on its banks. Photographs of the town centre and riverside park are depicted in Figure 4.2 Local block.

Figure 4.2 Local block.
4.3.3 Ben’s Walk.

‘Ben’s Walk’ was established by Ben Walsh during the Great Depression. It is a bushland area closest to the school that offers superb views of the Shoalhaven River, Cambewarra Mountain and the local area. To access this area from school takes a five-minute walk through the Nowra Showground. In total there were four sessions to Ben’s Walk, each covering a 4km-5km route. Sessions to be held at Ben’s Walk had the children leaving the school grounds at 9am and returning at 1pm.

The Ben’s Walk bush track is a circuit comprised of uneven surfaces, tree stumps, rocks, caves and steps. There is a mixture of foliage ranging from undergrowth to ferns and tall gum trees. Birds and insects are the most common wildlife seen. At the bottom of the valley a tributary of the Shoalhaven River is crossed via a suspension bridge. A further walk leads to a grassed area boarded by natural bushland. This space gave the children maximum opportunity to explore without adult intervention. A dedicated area was established for a toilet at the edge of the site in sheltered bushland. To emphasise a journey being taken a different route was taken to get back to school, which made the Ben’s Walk experience a circuit bushwalk. The lookout, a section of the bushwalk and the space used for manipulative sessions are depicted in Figure 4.3 Ben’s Walk.

Figure 4.3 Ben’s Walk.

4.3.4 Bundanon Trust.

Arthur and Yvonne Boyd gifted Bundanon to the Australian public in 1993 (Ely, 2014). The 1100-hectare property is approximately 20km from the school site. From school the journey there takes half an hour by bus. Bundanon is different from the other learning sites as it is on Wodi Wodi Indigenous land. The children had three
whole day sessions at Bundanon and the education team assisted with program delivery. Funding for the children to attend these sessions was via grant money accessed by The Bundanon Trust ‘Touched by the Earth’ program.

Sessions were held at the Bundanon Homestead, which is the location of Arthur Boyd’s home and studio. It is a working farm with a number of small huts on site. Bundanon features rocky escarpments, fertile river flats, a riverbank beach and the Shoalhaven River. Wildlife is abundant on the property. The main animals the children saw at Bundanon were kangaroos, wombats, birds, insects and the farm cows. Bundanon Trust’s paddocks, riverside beach and homestead area are shown in Figure 4.4 Bundanon Trust.

Figure 4.4 Bundanon Trust.

4.3.4 Booderee National Park.

Booderee National Park is in the Jervis Bay region 35km from the school site and was reached by bus during the case study. Parks Australia and the Indigenous Wreck Bay community jointly manage the park. One full day excursion occurred in this setting, with an Indigenous elder delivering program component throughout the day.

The naturally designed Botanic Gardens include interpretive signage about the diverse vegetation and local environment. Open spaces boarded by natural foliage allowed for manipulative activities to occur in small groups during the outing. There is also a small rainforest section with a maze of interconnecting pathways. Nearby, Greenpatch Beach is surrounded by parkland and includes a protected lagoon. The interpretive pathways at the Botanic Gardens, Greenpatch Beach and the lagoon are depicted in Figure 4.5 Booderee National Park.
4.4 Outdoor learning curriculum.

Australia is in the process of implementing a new National Curriculum, developed by the Australian Curriculum, Assessment and Reporting Authority (ACARA). In New South Wales (NSW) the Board of Studies Teaching and Educational Standards (BOSTES) is responsible for the curriculum delivery. BOSTES (2012a) adapted the ACARA National Curriculum to produce mandatory syllabus documents for use in NSW schools.

The case study was conducted in Phase 1 of the ACARA National Curriculum implementation. Devising the pilot program in a period of curriculum renewal was complex and mandatory documents came from both curriculum schemes. Outdoor learning curriculum was planned using the new NSW K–10 syllabuses for English (2012b), Mathematics (2012c) and Science (2012d). The old NSW documents for Human Society and Its Environment (HSIE) (1998a; 1998b), Personal Development Health and Physical Education (PDHPE) (1999a; 1999b) and Creative and Practical Arts (CAPA) for Visual Arts programming (2001) were used to guide learning activities in those areas. ACARA (2013) cross-curricula priorities are known as Learning Across the Curriculum (LAC) areas in the NSW BOSTES (2016) documents. Clarification of the specific documents used are detailed in Table 4.1 Curriculum Guidelines.
Table 4.1 Curriculum Guidelines.

<table>
<thead>
<tr>
<th>Curriculum Guidelines</th>
<th>NSW Syllabus Documents</th>
<th>NSW Syllabus Documents for the Australian National Curriculum</th>
<th>NSW Learning Across the Curriculum Areas</th>
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<tbody>
<tr>
<td>HSIE</td>
<td>English</td>
<td>Aboriginal and Torres Strait Islander histories and cultures</td>
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<tr>
<td>CAPA (Visual Arts)</td>
<td>Mathematics</td>
<td>Sustainability</td>
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<tr>
<td>PDHPE</td>
<td>Science</td>
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Curriculum covered in the outdoor learning program occurred across three integrated units of work: A Journey in Place and Water, Landscapes and Schoolyard Safari. Subjects covered as part of the program are provided in the overview Table 4.2 Year One Outdoor Learning Overview. Further details of each of the units of work are included in Appendix E: Curriculum Content Overviews (A Journey in Place and Water-Part A & B, Landscapes & Schoolyard Safari). Other curriculum was taught, however only aspects pertaining to outdoor learning are outlined, analysed and reported in the case study documentation.

Table 4.2 Year One Outdoor Learning Overview.

<table>
<thead>
<tr>
<th>Year One Outdoor Learning Overview</th>
<th>Term 1 Orientation</th>
<th>Term 2 A Journey in Place and Water</th>
<th>Term 3 Landscapes</th>
<th>Term 4 Schoolyard Safari</th>
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<td>Reading the Landscape</td>
<td>Schoolyard Safari</td>
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<td>(Weeks 5 – 10)</td>
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<tr>
<td>Science</td>
<td>Water Works</td>
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<td>(Weeks 5 – 10)</td>
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<td>Environments</td>
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<td>Artist Study: Andy Goldsworthy</td>
<td>Making Mini Beasts</td>
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<td>Weather</td>
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<td>(Weeks 5 – 10)</td>
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<td>Movement Skills</td>
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<td>Position</td>
<td>Data*</td>
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<td>Length*</td>
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* Secondary outcomes not analysed as part of the outdoor learning program were covered in sessions.
4.5 Pragmatic considerations.

Pragmatic factors require careful consideration when implementing outdoor learning (Beames et al., 2012). Constructivist researchers focus on the specific contexts in which experiences occur, in order to understand the setting of the participants (Crotty, 1998). As such, the constructs of PBOL will be examined in the context of the case study school. Key points paramount to the case study that are examined in this chapter are:

- Timetabling
- Risk assessment
- Providing information to parents
- Toileting
- Class off-site kit
- Individual outdoor learning kit
- Behaviour management.

4.5.1 Timetabling.

Outdoor sessions were programmed week to week and there was no set day or time when they occurred. Consideration of correct sequential order of curriculum or skills rather than a strict ‘this is an outdoor learning day so we must learn outdoors’ mentality was adopted. Beames et al. (2012) argue “Rather than being regarded as an infrequent, recreational disruption to learning, taking classes outdoors should be seen as an extension of, or indeed an integral part of classroom activities and used to meet the curricular and other needs of students” (p. 7). Outdoor learning was timetabled in the class schedule depending on what subject or subjects were being covered. For example, English focused sessions would occur in the timetabled English timeslot. However, due to the job-share situation where Annie taught the sessions, most regularly, outdoor learning occurred on a Thursday. Often continuous half-day blocks were spent outdoors. The teachers consulted with curriculum mandates provided by BOSTES (2012a) documents to ensure the regulation amount of minutes per subject was always maintained.
4.5.2 Risk assessment.

A generic risk assessment was devised to cover hazards that could be expected to be encountered (Beames et al., 2012). The teachers visited learning sites before sessions to gain an understanding of any new perceived risks. Ongoing judgments about reasonable risks within learning environments were made (Blenkinsop et al., 2016; Williams-Siegfredsen, 2012). Hazards identified were: weather conditions, walking on pathways and uneven terrain, contact with animals (e.g. snakes), use of natural materials for constructions, proximity to water (e.g. river and beach) and transport by bus. The teachers had first aid qualifications, carried a first aid kit and mobile phone, informed the children of any particular perceived risks for the session before leaving and let the school office know the plan for off-site activities. Weather reports were consulted in case severe weather warnings had been issued and sessions needed to be cancelled.

Routines were established with the children for situations that were deemed to be a risk. A clear set of safety routines was established for the manipulative materials and when playing in the outdoors environment. This allowed children to “develop a reasonable attitude to risk while becoming familiar and confident enough to interact with an ever changing natural environment” (O’Brien & Murray, 2006, p. 6). The teachers established boundaries each outdoor session by marking the area with witches’ hats. Line of sight to all children was a key safety consideration (Beames et al., 2012). This enabled the children to self-regulate, make safety decisions and assess risks within safe limits, while being in sight of an adult. Children were encouraged to engage in areas with minimal interruption from adults. Routines were taught with an element of fun to ensure they were remembered. For example when walking on the residential streets the children completed “zombie walking” (Figure 4.6 The zombie walk) where they had to be able to touch the person’s shoulders in front of them, as if they were a zombie.
The risk assessment was organised to allow riskier play and safe challenges (Blenkinsop et al., 2016; Gill, 2007; Knight, 2011) by establishing set protocols to manage them. For example the teachers had ascertained locations of uneven ground where the children may fall. An adult always stood in that location to assist if needed, while still allowing the children the challenge of getting over the obstacle independently. An example of this is seen in Figure 4.7 Safe challenge and risks.

4.5.3 Providing information to parents.

Before the program began the teachers delivered two information sessions for parents/carers. Examples of typical curriculum learning and practical procedures were outlined. As part of the meetings health, safety, risk, challenge issues and curriculum were discussed (Williams-Siegfredsen, 2012). Any parent/carer with concerns was invited to ask questions and seek clarification at this time or at any stage during the program. All notes were provided as paper copies to the children and event specific notes were also available on the school website for parents to access.
Three types of consent forms were devised to cover outdoor sessions; a blanket consent, event specific and session specific weekly notes. A summary of the contents of these is:

- Blanket consent forms (Beames et al., 2012) were developed for low risk activities on the local block and Ben’s Walk (see Appendix F: Blanket Excursion Note). This note confirmed the class could go off-site regularly without session specific notes and included general information to ensure the children always had a raincoat and hat at school.
- Event specific consent forms were devised for occasions bus transportation was involved. Exact dates, details of what to bring and additional parent return slips were included.
- Session specific notes were sent home with the children each week. A general overview of the weekly activity, a parent/carer volunteer slip and information such as leaving time or clothing requirements was also specified. Appendix G: Weekly Note was the generic proforma used. This note was not available online to the parents as it was part of increasing the children’s responsibility to physically give it to their parents. It enabled weekly outdoor curriculum learning to be communicated to parent/carers.

4.5.4 Toilets.

One of the trickiest issues to navigate during outdoor learning can be going to the toilet (Beames et al., 2012). Most sites in this case study were chosen as toilets were within proximity and could be quickly accessed by the children when accompanied by an adult. However, at the Ben’s Walk site there was no access to toilets. The children were encouraged to go to the toilet before leaving the school.

Procedures for doing a ‘bush wee’ were established by teachers before the first visit to Ben’s Walk. A specific toilet area was established behind a group of trees. Boys and girls went separately and an adult was always close by. Any toilet paper used was carried back to school in a sealed plastic bag. The children washed their hands with water provided by the teacher.
4.5.5 Class outdoor learning kit.

Teachers and children prepared an “off-site kit” as Beames et al. (2012) suggest “Having an off-site kit ready to go makes regular and spontaneous learning outside the classroom much more feasible” (p. 105). The kit included, a class list, basic first aid, toilet paper, spare rain coats, hats, sunscreen, a ream of paper and pencils. Items for specific outdoor learning kits were organised for each session. Children were given the outline of the upcoming session and were responsible for working out and collecting the resources that were needed (e.g. iPads, art supplies or additional first aid). At all times children were encouraged to be in charge of the supplies, thus adding another layer of decision making and responsibility to the program (Knight, 2009). The class resources were divided up and carried amongst the children. Annie carried any medications, vital first aid and the class list.

4.5.6 Individual outdoor learning kit.

Children each had a raincoat and school hat permanently left in their school bag to allow for regular weekly and any spontaneous outdoor learning sessions to occur easily. After they had heard a weekly outdoor learning briefing the day before sessions, all decisions about their individual outdoor learning kit were left up to the children. They were encouraged to listen to weather details and to pack extra layers for colder days or gumboots for when there was predicted rain. The teachers only intervened if there was a safety issue involved. For off-site sessions the children carried all their individual belongings. These included food, water, ‘Nature Journal’ and any extra layers of clothing. They used their pockets or brought in small backpacks and shoulder satchels in order to efficiently manage their kits in the outdoors.

4.5.7 Behaviour management.

The school follows a program called School-wide Positive Behaviours 4 Learning (SPB4L). SPB4L routines are explicit in detailing how children should, for example, walk around the school, stay within physical boundaries, behave in class and show respect to others. Positive rewards and consequences are also included in the program. As outdoor learning was seen as a part of the regular school timetable for
the class the procedures for behaviour in outdoor learning remained consistent with the SPB4L guidelines.

4.6 Conclusion.

The case study context has provided the logistical information and pragmatic considerations used to implement outdoor learning. The appendixed curriculum documents when read in conjunction with the session overviews provided in the results chapters provide a deeper understanding of the core curriculum covered. Specific information in this chapter allows for a clear and succinct knowledge of the contextual factors relevant for the remainder of the thesis document.
Chapter 5: Synopsis of School Based Assessment.

5.1 Introduction.
5.2 Academic data.
5.3 Behaviour records.
5.4 Focus children profiles.
5.5 Conclusion.

5.1 Introduction.

Throughout the year Annie and I collected standardised assessment academic data. Assessment records were used to ascertain the children’s academic level, identify individual needs and consequently plan a suitable teaching program. Behavioural data were collected in accordance with school procedures to present types of actions and locations where incidents occurred. Inclusion of the whole class assessment data and of the behaviour records provides an additional layer of knowledge. In this study the standardised data and focus children’s profiles provide quantitative information to support the qualitative narratives in Chapters 6 – 8.
5.2 Academic data.

Standardised academic assessment data present students’ learning growth during the year. Only children who completed both Term 1 and Term 4 assessments have been included in the comparison data. The total number of children for each assessment differs due to school absences on testing days. Reading, spelling and numeracy results are provided in the following assessments:

- Burt Reading Recognition (Burt Books, 1974)
- Reading Running Record (Clay, 2005)
- Dalwood Spelling (Dalwood Assessment Centre, 2008)
- Schedule of Early Numeracy Assessment 1 (SENA 1) (State of New South Wales through the Department of Education and Training, 2009).

Burt Reading Recognition

Twenty-five children completed the Term 1 and Term 4 Burt Reading Recognition assessment (Burt Books, 1974). Children are awarded a point for each word they recognise correctly. The points are then totaled and attributed a chronological spelling age. One year of spelling growth is considered to be 5 points. Results reveal 88% of the children achieved a year or more of attainment and as such are presented in Table 5.1 Burt Reading Recognition Test.

Table 5.1 Burt Reading Recognition Test.

<table>
<thead>
<tr>
<th>Burt Reading Recognition Test</th>
<th>Total number of children.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Under a year of growth (0 – 4 points)</strong></td>
<td>3</td>
</tr>
<tr>
<td><strong>A year of growth (5 – 9 points)</strong></td>
<td>17</td>
</tr>
<tr>
<td><strong>Two years of growth (10 - 15 points)</strong></td>
<td>4</td>
</tr>
<tr>
<td><strong>Three years of growth (16 – 20 points)</strong></td>
<td>1</td>
</tr>
</tbody>
</table>
**Reading Running Record**

There were 25 children who completed Reading Running Record (Clay, 2005) assessments in Term 1 and Term 4. Benchmarks for reading attainment are set by the local education department and children achieving under the set benchmark are said to be “at risk”. Table 5.2 Reading Running Record Benchmark Attainment provides totals of children who achieved over or under the benchmark.

**Table 5.2 Reading Running Record Benchmark Attainments.**

<table>
<thead>
<tr>
<th>Reading Running Record Benchmark Attainment</th>
<th>End of Term 1 Running Record (Benchmark Level 10)</th>
<th>End of Term 4 Running Record (Benchmark Level 16)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under benchmark</td>
<td>13 (52%)</td>
<td>5 (22%)</td>
</tr>
<tr>
<td>Over benchmark</td>
<td>12 (48%)</td>
<td>20 (78%)</td>
</tr>
</tbody>
</table>

The data presented depicts significant advancements in reading levels. At the start of the year 48% of the class was reading over benchmark level, meaning 52% of the cohort was experiencing significant reading difficulty. In Term 4 drastic improvements were recorded, with 78% reading over the benchmark level. Only 22% remained under benchmark at the completion of the year. This equates to an improvement of 30% of the class reading over benchmark reading level when comparing the beginning and end of year levels.

Reading is a large component of the academic learning in Year 1. The fact that the class achieved beyond expectations in testament to the fact spending large amounts of time in the outdoors was not detrimental to learning gain in this area. Contributing to the improvements in reading was the increasing ability children had to take risks in their reading, for example when interpreting the unknown words on signs.

**Dalwood Spelling**

The Dalwood Spelling (Dalwood Assessment Centre, 2008) test was completed in both Terms 1 and 4 by 25 children. According to their score of words spelt correctly in this test, children are ranked at the levels: severe difficulties, borderline
difficulties, average, above average and significantly above average. Table 5.3 Dalwood Spelling provides the breakdown of spelling attainment.

Table 5.3 Dalwood Spelling.

<table>
<thead>
<tr>
<th>Dalwood Spelling</th>
<th>Term 1</th>
<th>Term 4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Rating</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Severe difficulties</td>
<td>15 (60%)</td>
<td>10 (40%)</td>
</tr>
<tr>
<td>Borderline difficulties</td>
<td>6 (24%)</td>
<td>7 (28%)</td>
</tr>
<tr>
<td>Average</td>
<td>2 (8%)</td>
<td>2 (8%)</td>
</tr>
<tr>
<td>Above average</td>
<td>2 (8%)</td>
<td>4 (16%)</td>
</tr>
<tr>
<td>Significantly above average</td>
<td>0 (0%)</td>
<td>2 (8%)</td>
</tr>
</tbody>
</table>

In Term 1 84% of the class were recognised as having severe or borderline difficulties. While the Term 4 data shows 68% were experiencing severe or borderline difficulties. At the beginning of the year 16% were above average or significantly above average, increasing to 32% at the end of the year. The Dalwood spelling data identify the significant spelling difficulties for the students in the class and that steady improvements were made.

Schedule of Early Numeracy Assessment 1 (SENA 1)

Twenty-three children completed the SENA 1 (State of New South Wales through the Department of Education and Training, 2009) testing at the beginning and end of Year 1. Results indicate a significant learning progression regarding numeracy understanding. Overall above average annual learning growth was found in all components. The 65% of children presenting with below average scores in Term 1 was dramatically improved to just 17% at the end of the year. In summary an improvement of 48% achieving at average or above average was recorded. At the end of the year 26% of children were above average, in this test that equates to being proficient which is a level expected by the end of Year 2. The levels of growth are depicted in Table 5.4 SENA 1 Testing
5.3 Discussion of academic data.

Standardised academic data indicate a large proportion of the class entered Year 1 dramatically behind benchmarks and tracking well below expected levels for their chronological ages. Over the duration of Year 1 individual children and the class in general accomplished significant learning growth. When assessed against the same standardised measures, most children achieved more than a year’s worth of learning. While the results indicate a percentage of children still were below the required benchmarks, these were substantially less than the start of year.

While these assessments do not directly relate to the academic content of the outdoor learning program they do provide sound evidence of general learning growth. School mandated assessments all recorded an improvement in the children’s test scores. It can be concluded that significant time spent out of the classroom was not detrimental to standardised testing results or the learning associated with them. Children progressed at, or above the expected rate for all the areas assessed in standardised testing.

5.4 Behaviour records.

The school Behaviour Management Policy requires incidents be formally recorded. As such, behaviour notifications were documented where and when they occurred. The locations included are: the classroom, playground, outdoor learning or “release”. Release is when children complete music, Physical Education (PE) and library lessons with specialist teachers for a cumulative total of 1.5 hours a week. From the children (n=25) who completed the entire school year there were 139 behaviour incidents recorded. Totals for the component ‘where they occurred’ were:

<table>
<thead>
<tr>
<th>Level</th>
<th>Term 1</th>
<th>Term 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below average</td>
<td>15 (65%)</td>
<td>7 (17%)</td>
</tr>
<tr>
<td>Average</td>
<td>7 (33%)</td>
<td>10 (43%)</td>
</tr>
<tr>
<td>Above average</td>
<td>1 (2%)</td>
<td>6 (26%)</td>
</tr>
</tbody>
</table>

Table 5.4 SENA Testing.
• 0 during outdoor learning
• 30 whilst participating in release subjects
• 49 when in the classroom
• 60 occurred in the playground.

The playground comprised 43% of all recorded incidents. Categories in this component included: out of bounds, property misuses, defiance and aggression. The majority of the recorded playground incidents were for being ‘out of bounds’ and ‘property misuse’. The 35% of incidents which occurred in the classroom were for being ‘off task’, ‘non-completion of work’, ‘disrespect’ and for ‘disrupting others’ learning’. The time spent in “release” accounted for 21.5% of behaviour incidents. Considering release is a 1.5 hour timetabled segment of the week, it appeared to be a disproportionately high number of incidents.

Emergent trends from the behavioural data show the same children exhibited difficulties in the classroom, playground and release time. Five children received over ten behaviour reports over the duration of the year. However, these same children who exhibited the highest number of recorded incidents did not receive behaviour notifications during outdoor learning sessions. A location breakdown of their incidents is presented as Table 5.5 Behaviour Incidents.

<table>
<thead>
<tr>
<th>Child</th>
<th>Classroom</th>
<th>Playground</th>
<th>Release</th>
<th>Outdoor Learning</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Andy</td>
<td>7</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>11</td>
</tr>
<tr>
<td>Isaac</td>
<td>5</td>
<td>5</td>
<td>3</td>
<td>0</td>
<td>13</td>
</tr>
<tr>
<td>Jordan</td>
<td>5</td>
<td>6</td>
<td>5</td>
<td>0</td>
<td>16</td>
</tr>
<tr>
<td>Edward</td>
<td>8</td>
<td>2</td>
<td>10</td>
<td>0</td>
<td>20</td>
</tr>
<tr>
<td>Taj</td>
<td>6</td>
<td>16</td>
<td>6</td>
<td>0</td>
<td>28</td>
</tr>
</tbody>
</table>

Andy was the second youngest in the class and a full year younger than many of his classmates, entering Year 1 at 5 years 2 months. At the start of the year he found
regular indoor classroom routines, sustained engagement to tasks and paying attention, difficult. However, the outdoor construction activities allowed him to break up the task into chunks equivalent to his attention span. He was able to play as ‘work’, which was appropriate to his stage of development. Throughout observational data it was noted Andy generally worked with the more mature boys when completing outdoor learning. These older boys effectively mentored and assisted him to complete tasks by modelling their behaviours.

Isaac’s behaviour incidents all occurred in Term 4, when he was very emotional due to Finn’s illness and absence from their school friendship group. However, his misbehaviours did not transfer to outdoor sessions. In the outdoors he was observed to be on task, happy and content. Issac continually made connections to the nature experiences he experienced with his family. In the outdoors he flourished as a leader of activities, even during the time where he was experiencing notable emotional hardship.

Jordan displayed significant difficulty remaining focused in the classroom to complete tasks. He would complete his work quickly and then disturb others around him. The work he produced was not to the standard he was capable of. In the outdoors Jordan remained focused for extended periods; he could move around as he completed tasks. Jordan had issues with the constraints of being still in a classroom. The outdoors offered him the freedom to move as he pleased. As such he was able to complete more work and to the upper range of his ability.

Edward was diagnosed with Attention Deficit Hyperactivity Disorder (ADHD), by a paediatrician part way through Year 1. He had significant difficulties in less familiar situations and classrooms such as during release time. In outdoor learning Edward had no behaviour incidents, where the established boundaries, familiar workspaces and expectations ensured success. Edward also presented difficulties with personal space, group work, cleanliness, and self-care. However, outside Edward participated in parallel play, close to his peers and often joined in small group work. In the classroom he was easily noticeable as having additional needs, yet in the outdoors he was not easily identifiable and blended in with the rest of the class.
Throughout Year 1 Taj displayed significant difficulty with behaviour, he was constantly disruptive, defiant and rarely completed any written work. He managed to remain out of the sight and seemed as though he was on task during outdoor learning. In retrospect behaviour reports should have been submitted on a number of occasions. However, while Taj exhibited occasional issues in outdoor learning they were not as salient as in the classroom. In outdoors learning Taj did not disrupt other children or become defiant. He followed teacher requests and was engaged in tasks, even if they were not the ones set by Annie.

The lack of behaviour incidents in outdoor learning could be explained due to a number of contributing factors. The children were positive in the outdoors, which enabled a calm, happy and enjoyable atmosphere. Annie rarely had to re direct children as they were focused on their play and time spent with their friends. Expectations were relevant and explicit learning intent was stated, modeled and practiced. In the outdoors children completed activities to their own ability. They could be active and mobile, move around the space and interpret the clear directions from teachers in a way which suited their preferred learning style. Furthermore, an outdoor learning environment allows children to learn using their individual talents with opportunities to adjust the task to their learning style. The focus children provide in depth data regarding individual learning gains displayed in the class.

5.6 Focus children profiles.

The focus children form an integral component of the case study data. Background knowledge of these children is essential to establish a contextual understanding of their unique circumstances and academic progress. Profiles of the children are presented with key information to provide a foundation of knowledge about them as individuals. Their profiles can be read in conjunction with the qualitative data presented in Chapters 6 – 8. This enables a holistic understanding of the focus children’s progress throughout the year. The focus children are: Bruce, Griffith, Henry, Jessica, Julia, Lily, Mario and Taj. An introductory statement, age on entry to Year One, family background and standardised testing academic growth are presented for each of them.
Bruce
Bruce was anxious at the start of Year One, did not want to come to school and was experiencing difficulty making learning gains. At school, there was a focus on developing his confidence by implementing a range of initiatives. For example, feeding the chickens, providing him with opportunities to access high interest reading texts to stimulate interest and continual positive motivation. In outdoor learning he became a leader and began working with a wider circle of friends. He was able to guide his peers in activities such as how to jump over logs, climb trees and plant vegetables. Bruce drew upon his practical experiences in the outdoors when completing writing tasks in the classroom. His profile is provided as Table 5.6 Profile of Bruce.

Table 5.6 Profile of Bruce.

<table>
<thead>
<tr>
<th>Background Details:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Age on entry to Year One: 6 years 8 months</td>
<td></td>
</tr>
<tr>
<td>Family Background: Bruce has 1 brother and 4 sisters. He is the third oldest in the family. They are a devoted Catholic family. His mother was a preschool teacher before she had children and is now a full-time mum. His father is a surveyor who came to Australia as a young teenage Vietnamese refugee and is now a keen fisherman.</td>
<td></td>
</tr>
<tr>
<td>Behaviour Incidents in Year One: 0 minor and 0 major</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Academic Scores</th>
<th>Standardised Test</th>
<th>Term One</th>
<th>Term Four</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading Running Record</td>
<td>Level 10</td>
<td>Level 19</td>
<td></td>
</tr>
<tr>
<td>BURT Reading Recognition Test</td>
<td>Score: 22</td>
<td>Score: 29</td>
<td>Equivalent to Age: 6:01 – 6:07</td>
</tr>
<tr>
<td>Dalwood Spelling</td>
<td>Score: 13</td>
<td>Score: 16</td>
<td>Rating: Severe Difficulty</td>
</tr>
<tr>
<td>SENA 1</td>
<td>Score: Above Average</td>
<td>Score: Proficient</td>
<td>Status: Ongoing</td>
</tr>
</tbody>
</table>
Griffith
Griffith exhibited a sense of achievement and completed tasks with proficiency in the outdoors. However, in the classroom he displayed difficulty with coordination, attention, speech, fine motor control to hold a pencil and ability to follow instructions. Griffith’s parents attended most of the outdoor learning sessions and scheduled their family holiday around the off-site excursions. Griffith made continuous connections between home and school through the experiences in the outdoors. His profile is provided as Table 5.7 Profile of Griffith.

Table 5.7 Profile of Griffith.

<table>
<thead>
<tr>
<th>Profile of Griffith</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Background Details</strong></td>
</tr>
<tr>
<td><em>Age on entry to Year One: 6 years 4 months</em></td>
</tr>
<tr>
<td><em>Family Background:</em> Griffith’s father is a chef at a well-known local café. His mother is involved in retail and wedding planning. His sister was born in November, not breathing and his mother had severe complications after the birth. They were airlifted to Sydney, returning home after a few weeks. <em>Behaviour Incidents in Year One:</em> 8 minor and 0 major</td>
</tr>
<tr>
<td><strong>Academic Scores</strong></td>
</tr>
<tr>
<td><strong>Standardised Test</strong></td>
</tr>
<tr>
<td>Reading Running Record</td>
</tr>
<tr>
<td>BURT Reading Recognition Test</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Dalwood Spelling</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>SENA 1</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>
Henry

In outdoor learning Henry was a natural leader, where he regularly looked after the younger or less confident children in the class. He worked with a variety of children outside, not just his friends. Henry transferred his knowledge of his families’ farms into outdoor learning sessions. Further information is provided as Table 5.8 Profile of Henry.

Table 5.8 Profile of Henry.

<table>
<thead>
<tr>
<th>Profile of Henry</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Background Details</strong></td>
</tr>
<tr>
<td><em>Age on entry to Year One: 6 years 8 months</em></td>
</tr>
<tr>
<td><em>Family Background:</em> Henry has one younger sister and lives with both his parents. His mother and father run the town’s farm produce store. Henry has many relatives that live on farms in regional areas around the country.</td>
</tr>
<tr>
<td><em>Behaviour Incidents in Year One:</em> 0 minor and 0 major</td>
</tr>
<tr>
<td><strong>Academic Scores</strong></td>
</tr>
<tr>
<td><strong>Standardised Test</strong></td>
</tr>
<tr>
<td><strong>Reading Running Record</strong></td>
</tr>
<tr>
<td><strong>BURT Reading Recognition Test</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Dalwood Spelling</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>SENA 1</strong></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>
Jessica

Throughout Year One Jessica’s behaviour altered. Initially, everything she did was completed to perfection and she worked with girls who were her close friends. At this time Jessica completed cheerleading as an out of school activity. She was confident in her abilities in cheerleading and in during general sporting tasks. However, her confidence did not transfer to academic work or to taking risks in unknown situations. Jessica’s mother was extremely supportive of outdoor learning, she hoped that Jessica would learn to build confidence, increase her resiliency, take risks and get dirty through the activities in the program. As the year went on Jessica took many risks and challenged herself to do new things. Additional details are provided as Table 5.9 Profile of Jessica.

Table 5.9 Profile of Jessica.

<table>
<thead>
<tr>
<th>Profile of Jessica</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Background Details</strong></td>
</tr>
<tr>
<td><em>Age on entry to Year One:</em> 6 years 6 months</td>
</tr>
<tr>
<td><em>Family Background:</em> Jessica has one younger brother and lives with both her mother and father. Her mother is a high school physical education teacher and her father is a builder.</td>
</tr>
<tr>
<td><em>Behaviour Incidents in Year One:</em> 0 minor and 0 major</td>
</tr>
<tr>
<td><strong>Academic Scores</strong></td>
</tr>
<tr>
<td><strong>Standardised Test</strong></td>
</tr>
<tr>
<td>Reading Running Record</td>
</tr>
<tr>
<td>BURT Reading Recognition Test</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Dalwood Spelling</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>SENA 1</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>
**Julia**

In outdoor learning sessions Julia was an active participant. She spent considerable time observing the places visited and talking to herself about environments. Julia was always keen to get her hands dirty, play in the leaf litter or sand and loved finding new creatures. Often she would link the day’s activities to Indigenous stories her grandmother had told her. Her profile is provided as Table 5.10 Profile of Julia.

*Table 5.10 Profile of Julia.*

<table>
<thead>
<tr>
<th>Profile of Julia</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Background Details</strong></td>
</tr>
<tr>
<td><em>Age on entry to Year One:</em> 6 years 7 months</td>
</tr>
<tr>
<td><em>Family Background:</em> Julia has one younger brother and lives with both her mother and stepfather, in an extended family situation. Julia’s mother is attempting to gain further qualifications after several disruptive years. Julia is an Indigenous child who often acknowledges her culture.</td>
</tr>
<tr>
<td><em>Behaviour Incidents in Year One:</em> 0 minor and 0 major</td>
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<tr>
<th><strong>Academic Scores</strong></th>
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<tr>
<td><strong>Standardised Test</strong></td>
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<tr>
<td>Reading Running Record</td>
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<tr>
<td>BURT Reading Recognition Test</td>
</tr>
<tr>
<td>Dalwood Spelling</td>
</tr>
<tr>
<td>SENA 1</td>
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</table>
Lily
Lily constantly linked outdoor learning to her home life, bringing in books or photos from home that connected to sessions. In photo elicitation activities, photographs she took were consistently of natural features. Often Lily repeated outdoor learning activities at home and took photographs of the natural features she visited with her family. Lily’s parents attributed her increased interest in nature and photography to the outdoor learning program. When she made maps or in other manipulative activities she could describe them articulately. Her ability to transfer oral descriptions to her written work was of a high standard. Table 5.11 Profile of Lily provides her background and academic data.

Table 5.11 Profile of Lily.

<table>
<thead>
<tr>
<th>Profile of Lily</th>
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<tbody>
<tr>
<td><strong>Background Details</strong></td>
</tr>
<tr>
<td><em>Age on entry to Year One:</em> 6 years 9 months</td>
</tr>
<tr>
<td><em>Family Background:</em> Lily has one younger sister and lives with both her parents. Her mother is a primary school teacher and her father is an accountant. The family has moved four times since Lily was born and the family are now permanently settled in the region. Extended family live nearby.</td>
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<tr>
<td><em>Behaviour Incidents in Year One:</em> 0 minor and 0 major</td>
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<tr>
<td><strong>Academic Scores</strong></td>
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<td><strong>Standardised Test</strong></td>
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<tr>
<td>Reading Running Record</td>
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<td>Dalwood Spelling</td>
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Mario
On many different occasions in outdoor learning Mario was observed re-enacting computer games. Often walking in nature he could be heard commentating his movements as he re-enacted the games. He was engaged on tasks throughout outdoor learning, however these may have been ones he created, rather than ones set by Annie. Mario’s creativity and imagination were clear as he created his own activities in outdoor learning. Further information is provided in his profile Table 5.12 Profile of Mario.

Table 5.12 Profile of Mario.

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<tr>
<th>Profile of Mario</th>
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**Background Details**

*Age on entry to Year One: 5 years 9 months*

*Family Background: Mario has two teenage siblings. His father is in the Navy and was away at sea for 6 months of Year One. Mario’s mother works managing a nursing home and is often away from the family for long hours.*

*Behaviour Incidents in Year One: 10 minor and 0 major*

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<tr>
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<tr>
<th>Standardised Test</th>
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<th>Term Four</th>
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<td>Score: 50</td>
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<td>Equivalent to Age: 8:04 – 8:10</td>
</tr>
<tr>
<td>Dalwood Spelling</td>
<td>Score: 10</td>
<td>Score: 16</td>
</tr>
<tr>
<td></td>
<td>Rating: Severe Difficulties</td>
<td>Rating: Severe Difficulties</td>
</tr>
<tr>
<td>SENA 1</td>
<td>Score: Above Average</td>
<td>Score: Proficient</td>
</tr>
<tr>
<td></td>
<td>Status: Ongoing</td>
<td>Status: Completed</td>
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Taj
Taj was new to the school at the start of Year 1. Behaviour issues were common in the playground and modifications were established for in that setting. During outdoor learning Taj played with his friends, often off-task and running around the set area. Although behaviour incidents were not recorded, in retrospect they should have been. A notable improvement was seen in his behaviour and time spent on-task at off-site ventures. Additional information is provided in his profile Table 5.13 Profile of Taj.

Table 5.13 Profile of Taj.

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<th>Profile of Taj</th>
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<tbody>
<tr>
<td>Background Details</td>
</tr>
<tr>
<td>Age on entry to Year One: 6 years 5 months</td>
</tr>
<tr>
<td>Family Background: Taj has 4 brothers and 1 sister; he is the second youngest in the family. He lives with his mother and father who are both employed locally. His mother works for the local Aboriginal Medical Health Service and father is a builder. Taj is an Indigenous boy who has a close relationship with his siblings.</td>
</tr>
<tr>
<td>Behaviour Incidents in Year One: 21 minor and 7 major</td>
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<th>Academic Scores</th>
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<td>Dalwood Spelling</td>
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5.7 Conclusion.

The results presented in the synopsis chapter represent satisfactory learning growth for the case study class. While the assessments do not directly relate to the outdoor learning program, they do indicate a progression at or above the expected rate according to standardised measures. The large portion of the classes lesson time in the outdoors was not detrimental to their progression of indoor learning according to their academic attainment results indicate. School based behavioural data indicated the outdoors was a positive learning environment for the case study class. Behaviours for learning are presented throughout the qualitative results in subsequent chapters and reasons for positive behaviours being exhibited are discussed. When read in conjunction with Chapters 6 – 8 the data presented in this chapter enable a deeper level of understanding regarding what occurred within the class over the year of the outdoor learning program.
Chapter 6: Results: A Journey in Place and Water.

6.1 Introduction.
6.2 Session 1 - Black Cockatoo.
6.3 Session 2 - I Went Walking.
6.4 Session 3 - Bundanon Introduction.
6.5 Session 4 - The Expedition.
6.6 Session 5 - Water and Weather.
6.7 Session 6 - Stick Men.
6.8 Session 7 - Water Walk.
6.9 A Journey in Place and Water - Introduction to the discussion.
6.10 A Journey in Place and Water - Curriculum and engagement.
   6.10.1 Behaviours for learning.
   6.10.2 Playful learning.
   6.10.3 Incidental learning.
   6.10.4 Transfer of learning.
   6.10.5 Curriculum outcomes.
6.11 A Journey in Place and Water - Wellbeing.
6.11.1 Positive relationships.
6.11.2 Independence and responsibility.
6.11.3 Resilience, risky play and self-regulation.
6.11.4 Parental involvement.

6.12 A Journey in Place and Water - Making connections.
6.12.1 Background knowledge and past experiences.
6.12.2 Connecting home and school.
6.12.3 Environmental connection.

6.13 Conclusion.

6.1 Introduction.

A Journey in Place and Water was the first outdoor learning unit the class completed. Positioned in Term 2 of the school year, during April until June, the program was taught as the seasons progressed through autumn to winter. The integrated unit included English, Science and Visual Arts subjects. Throughout the initial sessions, information regarding children’s initial outdoor behaviours, connections with the outdoors and curriculum understanding was collected. These data were employed as a benchmark for comparison with subsequent terms’ findings. This enabled the children’s developments across the emergent themes to unfold.

6.2 Session 1 - Black Cockatoo.

Before beginning the inaugural outdoor session children individually recorded responses to three pre-program questions in their Nature Journals. The questions were, “What do you think we are going to learn in the outdoors?”, “What are you most looking forward to?” and “What are you least looking forward to?” Completing these questions before the sessions began enabled the children to predict what they thought learning outside would be like and provided insights into their background knowledge. It also gave the teacher with foundational knowledge regarding the children’s previous outdoor experiences before embarking on the actual outdoor program.
There were four educators and one parent present throughout the two hour long Black Cockatoo session. During this time the class was oriented to outdoor routines, physical boundaries of the space and procedures for using natural materials. Safety protocols were established for risky play such as climbing trees and jumping on boulders or logs. According to school rules, these perceived risky activities were not allowed at recess or lunch times and as such the children required extra instructions on how to use these aspects of the playground safely.

A yarning circle, where children would sit in a circle formation to listen to instructions or stories, was introduced. Betty explained that ‘yarning circle’ was an Indigenous term to describe how local Aboriginal people would traditionally sit to share stories or yarns. The children sat in a yarning circle and listened to Betty tell the local Indigenous dreaming story of the Black Cockatoo. The class then walked along the painted interpretive path of the story as they interacted with the images. Working with their friends the children then made Black Cockatoo nests using natural materials.

As a conclusion to the session the game “1, 2, 3 where are you?” was taught. To play the game the teacher calls out “1, 2, 3 where are you?” and the children respond “1, 2, 3 we are here”, this continues until all children respond and are consequently paying attention.

Findings

The focus children’s responses to the pre-program questions were transcribed from their Nature Journals and are presented in Figure 6.1 Pre-program responses. These responses are referred to in the analysis of findings at various stages and highlight the progression of children’s thinking on outdoor learning.
During the Black Cockatoo session, I observed the class settle into their outdoor routines. In my observational notes I recorded how the children consistently followed directions and complied with teacher requests as they learnt new routines. Figure 6.2 Outdoor learning yarning circle provides a visual of the children’s engagement and focus during the activity.

When the class walked along the Black Cockatoo story path, in my observations I recorded the children stopping to inspect each of the paintings carefully, calmly and quietly. When making their nests the children worked in groups of two or three with their regular friends. Children built traditional nest shapes; some of the girls’ groups told me they used flowers to make them pretty, as seen in Figure 6.3 Flowers in nest
constructions. All the nests were small and made using a minimal range of natural materials, such as the one seen in Figure 6.4 Small nest constructions.

Figure 6.3 Flowers in nest constructions.

Figure 6.4 Small nest constructions.

During the first outdoor learning play experience, I observed a group of children who were apprehensive about climbing a tree. An adult reinforced that they could climb it to a specified height as seen in Figure 6.5 Initial tree climbing. Children proceeded to climb the tree, while some others were later seen engaging in risky activities such as jumping on boulders. Procedures for risky play, that had been established at the start of the session, were applied by the children as they completed these activities.

Figure 6.5 Initial tree climbing.
6.3 Session 2 - I Went Walking.

The second session was conducted in the playground for 1.5 hours and was based on the focus text *I Went Walking* (Machin, 1989). In the narrative’s characters go on a journey to discover places around them. The text follows a repetitive pattern, for example *I went walking. What did you see? I saw a green duck.* The book had been read in the classroom prior to outdoor learning.

To begin the outdoor session Betty introduced the concept of an Indigenous yarning stick to the children. She explained that when you collect items and attach them to a stick it tells a story, so it is called a yarning stick, as it tells a yarn. Four supervising adults spent 30 minutes leading small groups to explore the school grounds. As children explored the school grounds they picked up natural items and used elastic bands to attach materials to their own yarning sticks. Each time a child secured an item to the yarning stick they repeated the pattern from the text, for example *I went walking. What did you see? I saw a pink flower.*

At the end of the session children wrote “I went walking” sentences in their Nature Journals. Their yarning stick items were used as a stimulus to write about where they had been. Over the next week children utilised their yarning sticks in their oral language sharing time to retell their exploration of the school grounds to the class.

**Findings**

While the small groups walked around the school, I completed a general analysis of proceedings. I observed children requiring additional adult support when choosing locations to be visited and needing assistance to find materials to attach on their yarning sticks. Few children I saw had the perseverance or confidence in their own ability to independently attach materials to their sticks. Figure 6.6 Yarning stick attachment depicts a child attempting to attach materials. Children found items of personal interest to attach to their sticks it meant that no two sticks had the same materials and consequently each of the final products were unique. Figure 6.7 Yarning stick is an example of what was produced.
The class used their Nature Journals outdoors for the first time to write “I went walking” sentences. Observational photographs I took depicted the class engaged in the writing task, requiring no adult intervention to remain focused or to spell words. An image of what I witnessed is provided as Figure 6.8 I went walking written work.

Children’s sentences indicated they had unique and individual experiences during the session. Examples are transcribed in Figure 6.9 I went walking sentences.
Various “I went walking” sentences indicated an unplanned incidental focus, which was a dead bird found in the vegetable garden. During the session, I observed most of the class discover the dead bird, asking each other questions and wanting to touch it. Children took many photographs of the dead bird and one is provided as Figure 6.10 Dead bird.

When I asked the children about places they discovered in the session, their responses reflected personalised experiences. Children mentioned places new to them such as: the garden, playground, wheelbarrow and sandpit. A selection of the focus children’s interview responses is included as Figure 6.11 I went walking interviews.
In the interview, Lily said she did not find anything new on her walk around the school. Additionally, photographs she took indicated she had focused on intricate details of known places such as single flowers, leaves or sections of trees. Lily’s responses inferred she already knew many aspects of the playground and was attune to her immediate surrounds at school. At this point the other focus children were exploring unknown aspects of the playground to gain a deeper connection to place.

### 6.4 Session 3 - Bundanon Introduction.

Bundanon was the first off-site venture and was introduced to children in an immersive full day session. Five educators and nine parents attended the day. Elizabeth oriented the class to the Bundanon site, Arthur Boyd and his art. Indigenous elders, Aunty May and Aunty Sally, spoke to the children about the Indigenous history of the Bundanon land and told local dreaming stories.

Elizabeth led the class through Bundanon’s farmland paddocks, as the children ran and played behind her. At the end of the first paddock they assembled into pairs to complete a blindfold sensory walk. One partner led the other blindfolded child along a track as they used their senses of smell and touch to observe the farmland environment.
At the riverbank beach, children worked with friends and parent helpers making maps to represent their journey from school to Bundanon. They used sticks, leaves, seeds, dug in the sand and collected water to construct their designs. To conclude the day, the class walked back to the homestead for lunch and a play.

Findings

Detailed observations were conducted during the session at Bundanon, recorded as researcher notes and were supported by photographs I took. Initially, at the start of the day, I observed children listening attentively to Elizabeth, Annie, Aunty May and Aunty Sally. However, as the morning progressed I noted Elizabeth and Annie experienced increasing difficulty managing the class. Figure 6.12 Listening skills, shows Elizabeth delivering instructions while children play with the sand and are not listening to her.

Field notes I recorded while the class were in the paddocks, noted the sense of freedom the children demonstrated. Children ran and walked in an unstructured, informal manner through the open farmland space, talking and playing with their friends. This is depicted in Figure 6.13 Walking in the paddocks.
At the river, I observed children laughing, talking, stomping in the water, running on uneven sand, rolling down the sand dune and exhibiting sustained engagement making their maps. A third of the class went straight to the water’s edge and played, as seen in Figure 6.14 Water sand play. The group at the water’s edge did not make distinguishable maps of their journey to Bundanon. The remaining two thirds of the class stayed on the dry sand area and utilised natural materials or moulded sand to make semi-structured maps. Groups on the dry sand area worked with high levels of adult support, as seen in Figure 6.15 Assisted sand play.

The language children used to describe their maps to me was brief, disjointed and offered only basic information about the features included. Their vocabulary indicated a novice understanding of the environmental features they were interacting with. As this was their initial experience at Bundanon, this level of interpretation was an expected finding.

After completing their maps many children were wet, needed to find their removed clothes and had sand positioned in uncomfortable places. Very few children I observed, were able to complete the necessary post activity self-care actions
independently. The high degree of adult support present was fully employed to ensure the children were comfortably clean and dry for the remainder of the day.

6.5 Session 4 - The Expedition.

Before the outdoor session the picture book *The Great Expedition* (Carnavas, 2011) was read. The class prepared *Year One’s Great Expedition* by drawing a designated route on a school playground map. Following the structure of the original text children were assigned roles such as navigator, botanist and explorers for their expedition.

During the half-day outdoor session the class explored the playground as they went on *Year One’s Great Expedition*. The children made their way around the oval, traversing over the boulders, along the path, on the equipment, around the forest and through the great sandy desert sandpit. Children tallied natural items they saw along the route such as lomandra grass, gum trees and birds. At the end of the expedition, children drew symbols in sandy soil to represent the route, and small groups made maps of their expedition using natural materials. Annie provided paddle pop sticks and pipe cleaners for the children to make models of themselves. They used the models of themselves in their re-enactments of the expedition on the maps.

A full sequence of English writing lessons occurred incorporating details of *Year One’s Great Expedition*. Vocabulary practised in the outdoor session transferred to pair work sentences and group writing tasks. As a culminating activity, photographs of the expedition were printed and distributed to the class. Children wrote sentences to describe the images. Each child contributed their photograph and accompanied writings to make the whole class book titled *Year One’s Great Expedition*.

**Findings**

The observations I took during this session were recorded in field notes, photographs and supported with GoPro footage. For the expedition many children came prepared with props, such as binoculars, a compass or fancy dress hats. On the expedition I observed children using initiative to follow the map, take periodic breaks to tally
natural features and devise symbols to represent the journey. Bruce was the leader of *Year One’s Great Expedition*. He brought his mother’s compass to school to guide the expedition and proceeded to confidently lead the class on their exploration. The class followed his lead politely and accurately. Additionally, GoPro footage of the expedition shows children using positional language to recount events, re-enact the original text and describe aspects of the playground. A sequence of photographs showing the engagement of the class is provided as Figure 6.16 Year One’s Great Expedition.

*Figure 6.16 Year One’s Great Expedition.*

After the walk was completed, I observed the class for over an hour working in small groups constructing their expedition maps with bark, sticks, flowers and by drawing in sandy soil. As they built their maps children were consistently re-enacting the language from the original text and developing their own narratives of *Year One’s Great Expedition*.

Bruce completed his map with a close friend and said to me in a conversational interview, “*We enjoy being in nature and helping the environment. We pick the stuff up off the ground so it is dead. We enjoy about working together because we are really good friends and we always work together if we are allowed to. If we get to choose somebody we always work together*”.

Lily completed her map with a group of six children from a variety of friendship groups. I observed her take on the role of leader and instruct others in how to make the map. In her conversational interview she said, “*I worked with Andrew, Isla, Jessica, Brad and Cara. They like being outside because it is fun and you get to learn new things outside. Learning that well it is fun, it is fun outside. I liked building the*”
map”. The maps and interpretations of Bruce and Lily are included as Figure 6.17 Expedition maps and interpretations.

**Figure 6.17 Expedition maps and interpretations.**

**Bruce**
The teacher said you have to make a map. We made a map of the playground. We made the arrows out of sticks and we made a gum tree in the middle. It is kind of a gum tree in the middle of the playground. We did the black cockatoo and we made a tree out of sticks. We found a curved stick to make the arrow. First we made the arrows to go to the black cockatoo and then one to go to the play equipment. We went over the play equipment. And then we put another arrow and another one and the tree is the end.

**Lily**
Well this is the big tree with the two seats um and it is really big and it has got lots of shade and it is that one next to the big tree. That is the tree on the Kindy side, and that is the big bit that is there. We just put that in because it was like, we just liked how Brad found it.

The Expedition sequence featured a meaningful transfer of knowledge between the indoor and outdoor experiences. I was the teacher during the follow-up classroom activities and witnessed an increase in motivation for learning, a high degree of academic outcome attainment and quality of work amongst the class. Children eagerly completed text for the class book *Year One’s Great Expedition*. In their English books, individuals who were reluctant writers wrote simple sentences and more able children filled pages with sequences of sentences. The group writing posters are an example of the work completed and provided in Figure 6.18 The Expedition class writing.
6.6 Session 5 - Water Audit.

To complete the Water Audit session, the class divided into small groups led by Year 6 students, a parent and Annie. Leaders supervised their groups for 1.5 hours as they walked around the school grounds to mark water features on the school map. Each small group was designated a section of the school to complete a detailed water audit. For the audit they counted the taps, mains, bubblers and toilets and checked if water components worked, and measured water flow.

Afterwards, the class regrouped for 30 minutes of quiet reflection time. In the quiet time children were encouraged to use their senses to observe the weather, listen to the wind in the trees or lay down to watch the clouds. Charcoal pencils were provided for the children to independently sketch their weather observations.

Findings

Seven focus children used photographs they had taken in the water audit session to complete photo elicitation interviews. Students’ responses from the interview transcripts were analysed into the emergent themes of clouds, water tank, bubblers/hose and plants. The details within these responses are important as they highlight places within the school grounds children saw as vital to the water cycle. Additionally, knowledge of these aspects infers the children are able to apply theoretical classroom lessons concerning water to the real world. A representative selection of the children’s photographs and comments is provided as Figure 6.19 Water photo elicitation.
Towards the completion of the Water Audit session, I asked Henry and Julia in a conversational interview to “Tell me about the water and weather”. Their responses indicate two vastly different viewpoints on the topic, which indicate their background knowledge of water. They are significant data to highlight how new knowledge is constructed based on previous experiences. The transcripts of the interviews are included as Table 6.1 Thoughts on water and weather.
Table 6.1 Thoughts on water and weather.

| Thoughts on the water and weather |

**Henry**

We should water because it and because if we didn’t have water we wouldn’t survive and if we did have water we would survive. Water is in all different countries around the world. It is precious and you should not play with it. Because if you play with it you waste it really easily.

Drought is a thing in some states and countries where they haven’t had rain for many many years and it starts to get all… there is no grass for animals to eat. If there is no grass for animals to eat and they die. If animals die then it won’t be …you won’t have very much animals and you could get and if you really like them you could get sad if they were your favourite.

You have to feed them by hand and it’s very annoying, as you have to get up early in the morning. If you are on a big farm you have to get up really really early in the morning cause the sheep won’t have any food and they… enough to get big.

Because we don’t have droughts because it is not good for the farmers getting up early and feeding the animals. They don’t have that much water and they can’t just go down to the shops and buy it as they are all run out if it.

We can help the famers by praying to God.

See the weather, as there are lots of rain clouds. I know it is going to rain and not. How it doesn’t rain is God doesn’t make it. God makes the weather rain for other things. The wind talks to the clouds and it talks to the trees. Then the trees talk to that one very quietly. It tells it is going to rain.

**Julia**

I know one story about the weather. Like the cloud got bitten from the snakes that fly.

My nanna told me that story, she is Aboriginal and so is my mum. But they changed to a different country. (What country). In this country Australia. (So they are Aboriginal Australians?) Yes.

Water, trees can reach to out of the ground and try and get the water to it. Then it just touched it and it starts to grow. Very slowly.

(Sung) There was clouds raining raining there was lots of clouds raining, we had fun very much fun and the water changes.

(Julia then sang a song in an unrecognisable language. A song that her Aboriginal Nana taught her.)

### 6.7 Session 6 - Stick Men.

To begin the 1.5 hour playground session Annie read the picture book *The Stick Man* (Donaldson, 2008) to the class. Next, the children made stick men with paddle pop sticks and pipe cleaners. Small groups then found natural materials and constructed
story settings for their stick men. Children were encouraged to write labels on small pieces of paper to describe their story setting and attach them to their constructions. Groups were asked to create a journey their stick man could take and then re-enact it in their story settings.

Findings

While Annie read *The Stick Man* (Donaldson, 2008) I completed detailed observations of the class, written in field notes and visually in photographs. Across the data forms I recorded the class listening attentively. However, Taj was not concentrating or paying attention to Annie. Figure 6.20 Reading *The Stick Man* depicts the class engrossed in the story while Taj plays in soil. Annie realised Taj was not listening, however the management of the remainder of the class took precedence.

While observing the class make stick man story settings, Annie and I discussed that we had witnessed significant changes during group work activities since beginning the outdoor learning program. We noted the amounts of children in each small group had increased and were now up to seven in number. The size of constructions had also increased, as had the variety of resources being used. Many children confidently climbed up trees to source materials or to place their constructions at higher levels. Additionally, groups transferred their oral discussions onto written labels and where they attempted to spell complex words or original phrases. These observations are presented in Figure 6.21 Stick Men group work and show a diverse range of materials, five visible children in the group as well as a labeled construction. Researcher field notes record the children’s independence when manipulating natural
materials was also improving, demonstrated for example in the way they could tie lomandra grass as depicted in Figure 6.22 Stick Men independence.

During the Stick Men session, Taj and Mario were my observational focus children. They were involved in scheduled observations, conversational interviews, GoPro footage and photographs. I overheard Taj talking to his friends about making a fire. When I asked him if he knew how to make a fire he said, “You rub it with sticks and rocks. I tried with my dad. At my home”. He was effectively making connections between the activity and his past experiences. During the manipulative task Taj drifted around the space, climbing the tree with a friend and making a pile of sticks as seen in Figure 6.23 Taj in the Stick Men.
Mario did make a stick man figure and constructed a story setting. However, I observed his efforts to be sporadic and his engagement on the task wavered. GoPro footage reveals Mario was participating in an imaginary story of his own, while the remainder of the group he was working with, engaged in a completely different narrative. In effect, Mario was participating in parallel play next to his group. He explained his Stick Man story to me saying, “I got my I got my I got my my stick king. He is a stick king. That means he rules all sticks. He commands them. He has slaves. He has slaves. Now I am just gonna…. I am the king”. Mario was content in his individual imaginary story. GoPro footage depicts Mario’s group as unaware he was completing an entirely different story from them. He is seen with his Stick King in Figure 6.24 Mario and his Stick King.

Figure 6.24 Mario and his Stick King.

6.8 Session 7 - Water Walk.

The Water Walk session was the first off-site walking venture and went for the duration of 2 hours. Protocols were devised with the class for walking on established pathways, as shown in Chapter 4, Figure 4.6 The zombie walk. Children discussed how to carry the required resources of their individual outdoor learning kit, as described in Section 4.5.6, in this case the materials were their Nature Journals, a pencil, snacks and water bottles. Introducing carrying their own kit encouraged children to develop independence by being responsible for their own possessions and understanding the safety aspects of being prepared while outdoors.

Annie told the class they were detectives who would find traces of water on the 1km walk to the Shoalhaven River. Before leaving the school grounds, children predicted where they could find water features. During the walk past homes and the local
hospital, the class found water mains, taps and water tanks. Once at the riverbank, children drew, labeled and wrote about the water features they had seen. As they sat on the riverbank, children made observations of the river currents and surrounds of the Shoalhaven River. The class walked further along the river to find an open space and made ephemeral artworks representing the movements of the river water.

Findings

There had been heavy rain on the morning of the Water Walk session so Annie asked the class to consider safety precautions. The children decided everyone needed to wear a raincoat and if the weather got worse, they would return to school immediately. While observing this discussion, I noted an increase in the children’s confidence to assess situations and then make choices based on information presented to them. I witnessed the children as they prepared themselves for the off-site venture. They independently put on raincoats and worked out how to carry their Nature Journals, pencil, snacks and water bottles in their pockets.

Along the way to the river, I completed general observations utilising field notes, iPhone footage and photographs. These were later cross referenced with children’s GoPro footage. I witnessed children eagerly conversing about discovered water features. Children were leading the walk, with those at the front of the line stopping when they saw something of interest. Annie was located at the back of the lines and did not intervene with additional safety or behaviour reminders. The self-regulation seen amongst the children was of a high standard. Field notes I recorded show the class walking independently and in two calm organised lines to the river, as seen in Figure 6.25 Water Walk.
Annie did not give instructions on where to look for water features along the way. When reviewing the GoPro footage I heard a constant chatter of sightings such as, “tap”, “water”, “river”, “hose”, “cloud”, “pipe”, “water tank”, and “water main”. Chants of common features “tap tap tap”, “water meter water meter water meter” and “irrigation irrigation irrigation” are also throughout the footage. Additionally, Bruce took photographs during the walk and all of them were of the taps, pipes and water mains. Annie noted in a taped conversational interview that the class exhibited independence, focus and motivation while completing the task.

Immediately, on arrival at the riverbank, I observed the class get out their Nature Journals and begin recording water features. My iPhone video footage shows the class completely engaged and speaking softly to each other as they worked. Annie did not offer any instructions, yet children began written work autonomously. Additionally, Annie and I noted children who did not usually engage with written work inside the classroom made substantial efforts while outdoors at the river, without any additional prompting or support. When reviewing written work I found a great variety in the type of items recorded and that children had included those water features of specific interest to them. Examples are included as Figure 6.28 Water Walk Nature Journals.

*Figure 6.26 Water Walk Nature Journals.*

The class created a wide assortment of water focused ephemeral artworks. These included water symbols in the sand, holes to find water and interpretive pieces. However, many ephemeral water artworks resembled previously made constructions. Making constructions was now a common activity for the class and providing specific learning intention to the children was required to avoid generic pieces.
Bruce created a water focused ephemeral artwork, as seen in Figure 6.27. He interpreted his artwork to me in a conversational interview by saying “The bark shows how river water moves and flows. I used the bark so I could bend it to make it curvy like the ripples in the river”. Bruce created his artwork by imaginatively bending and twisting natural materials to depict the movements of water. In doing this he demonstrated his awareness of river currents based on his background knowledge and the experiences at the river in PBOL.

![Figure 6.27 Bruce's ephemeral art.](image)

6.9 A Journey in Place and Water - Introduction to discussion.

The findings presented in this chapter represent initial research understandings and provide a benchmark to measure children’s growth. Annie and I reflexively used these introductory findings to further inform our understandings of PBOL pedagogy and gave significant direction to the remainder of the outdoor learning program. Information presented in the emergent themes of curriculum and engagement, wellbeing and making connections. These themes and findings are discussed in the following section with reference to relevant literature.

6.10 A Journey in Place and Water - Curriculum and engagement.

During the first term of outdoor learning sessions anticipated sub themes emerged, specifically an emphasis on behaviours for learning, playful learning and curriculum outcomes. Unexpected themes were incidental learning and transfer of learning. These initial understandings correlate to previous research.
6.10.1 Behaviours for learning.

During the first half of the school year there were considerable behavioural issues requiring disciplinary measures occurring in the classroom. The teachers regularly had to intervene to stop minor violent incidents and redirect children to their desks, otherwise they were inclined to wander around the classroom. The most common behaviour modification required were reminders to listen, as on the carpet children literally rolled around on the floor and talked with the people around them. There were significant disruptions to the students’ learning as a result of the prevalent misbehaviours and frequent Behaviour Reports were written. The data presented in Chapter 5.4 supports this finding, where 49 reported behaviour incidents occurred in the classroom.

In comparison, from the inaugural session of outdoor learning Annie was able to interact with the children offering encouragement rather than discipline. Throughout the initial and subsequent outdoor sessions children were on task, engaged, attentive and followed directions. For example in the Black Cockatoo session the children consistently followed teacher directions and the class listen attentively during the book reading in The Stick Man session. The school based behavioural data presented in Chapter 5.4 records no incidents in PBOL and reinforces outdoor learning behaviours were of a higher standard when compared to those being demonstrated indoors. Improved behaviours for learning were expected in the case study. Established outdoor learning programs implemented in the United Kingdom and Denmark promote positive behaviour impacts for children (Dillon et al., 2005; Hartmeyer & Mygind, 2015; Knight, 2009; Mannion et al., 2015; Murray & O’Brien, 2005; Slade et al., 2013).

During the second session in the playground, children recorded sentences in their Nature Journal. They worked independently and with focus on the specified learning intention while writing “I went walking” sentences regarding the yarning stick activity. Correspondingly Tanzer (2011) noted children in her study successfully used outdoor experiences to inform their writing. Furthermore, a student in Kopelke’s (2012) primary school environmental education study articulated “We are actually having fun and then coming back and writing up what we have done” (p.
When the children in the case study wrote about their own enjoyable experiences, an increased motivation to complete the task ensued. Their positive behaviours for learning impacted on their ability to complete written work outdoors.

However, the first off-site venture to Bundanon did not reflect the children’s positive behaviours for learning exhibited in the initial outdoor learning sessions. In comparison, children’s engagement and listening skills throughout the day at Bundanon were below average. The inability of the children to focus when educators spoke to the class was concerning. Without the children’s attention, their safety and ability to cover curriculum outcomes in the outdoors was in jeopardy. Bundanon was an unfamiliar environment for the class on their first visit. Kellert (2012) strongly promotes children learn optimally and are more comfortable when they are familiar with places.

Compared to the visit at Bundanon, sessions in familiar locations promoted more desirable behaviours. For example, during the venture to the Shoalhaven River, the class demonstrated positive behaviours for learning. Children followed instructions readily, walked safely in the public streets, independently recorded observations and engaged in creating ephemeral art pieces. This environment was close to the school and regularly visited by families, consequently it was familiar to the children. Therefore, the case study data indicate there is greater potential for learning growth in known places. Off-site ventures to familiar and regularly visited places become a learning site rather than a one off, novelty experience. Considering the familiarity of the school playground for these children, this was also a prime outdoor learning location.

6.10.2 Playful learning.

The case study implemented playful learning activities, such as building nests, re-enacting stories and creating maps. Playful learning tasks emerged as a successful method of engaging children in meaningful tasks during the playground and off-site ventures. While considerable research exists in the early childhood sector regarding play as learning, there is little to support it’s implementation in primary schools (Lillard, 2013; Walsh, McGuiness, Sproule & Trew, 2010). Walsh et al. (2010)
recognise where is enacted in primary schools “Adults maintain a degree of ‘playfullness’ in the child’s learning experience, while at the same time maintaining adequate structure to ensure that effective learning takes place” (p. 64). To enable curriculum outcomes to be covered the outdoor learning program incorporated specific learning intentions for playful learning such as providing an outline to construct a story setting for the stick man or making a map of the expedition with natural materials.

From the beginning of the outdoor learning program children eagerly manipulated natural materials in playful learning. The positive benefits of manipulating natural materials to build connection, creativity and imagination are well documented (Hunter & Walsh, 2014; Knight, 2009; Lillard, 2013; Mannion et al., 2006; Nicholson, 1972; Sobel, 1998; Stephenson, Ellis & Martlew, 2010; Tanzer, 2011). The theory of loose parts (Nicholson, 1972) argues, “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 in it” (p. 6). The natural environments of PBOL were rich in loose parts for the children to explore and this enabled them to enhance the creativity of their constructions.

Throughout the initial sessions constructions made by the class were controlled, small in size and used a minimal variety of materials. However, towards the end of the term children were witnessed increasing their explorations to find materials. Tanzer (2011) also found over time children conducted focused explorations to find an increasing range of materials and used a greater variety of methods when building their constructions. Additionally, in the PBOL case study children’s interactions with materials fostered problem-solving as children worked out which sticks were strong enough to support structures. As they became increasingly inventive and imaginative loose parts took on all manner of roles in their playful learning, such as when Bruce used bark to make ripples of the water in the river and tied lomandra grass around loose parts to make his stick man figure.
6.10.3 Incidental learning.

Incidental learning opportunities began occurring at the start of the outdoor program and became more frequent in subsequent sessions. Tanzer (2011) also realised child driven moments of incidental learning were common in her study of place-based education and argued they should be encouraged. The most salient memory children had of the second session in this case study was discovering a dead bird. Although the class had been on a journey to various sections of the school for an hour, it was the sighting of the bird in the last ten minutes that was the most recounted moment in their written sentences. Tanzer (2011) argued, “The curriculum is not based on these moments but it is instead improved by them” (p. 100). With the discovery of the dead bird a new learning opportunity unraveled. When Annie and I realised the learning potential of incidental experiences in the outdoors an immediate shift occurred in the understanding of place-based pedagogy. Subsequent curriculum was pre-planned yet allowed for incidental learning to emerge in response to places and the discoveries of individual children.

Incidental learning opportunities became recognised in the case study as an aspect of responding to place. Mannion and Lynch (2016) advocate place-essential outdoor learning is a “Departure from the established rational-linear models of planning where learning objectives are set beforehand and drive the planning process and where place is not factored as important in the planning other than as a container” (p. 92). Curriculum activities in PBOL were pre-planned however, the organisation of sessions incorporated flexibility, which allowed for greater responsiveness to place. For example the Water Walk route was roughly organised to allow exact locations visited to emerge from the children’s interest on the day.

6.10.4 Transfer of learning.

Transfer of learning between the indoor and outdoor learning environments reoccurred as a talking point in the weekly programming meetings Annie and I had. Immediately we realised there remained a distinction between what was happening inside and outside the classroom, for example in the introductory session (6.2) the children did not complete any follow up oral or written work inside the classroom.
Once the lack of transfer of learning was recognised, every effort was made to ensure a flow of activities occurred between the indoor and outdoor environments.

When a transfer of learning occurred from the outdoor to the indoor environment, there was a notable improvement in curriculum outcome attainment. In The Expedition activities, the planning, outdoor learning and subsequent indoor writing tasks flowed to form a steady sequence of learning progression. Annie and I assessed the outcome attainment in the culminating whole class books *Year One’s Great Expedition*. The assessment found the class had developed a greater than normal range of vocabulary, increasing sentence length and an accurate recount of experiences. The writing curriculum outcomes were achieved due to the stimulus outdoor learning provided.

**6.10.5 Curriculum outcomes.**

Specific curriculum outcomes covered in the unit A Journey in Place and Water are presented in Table 6.2 A Journey in Place and Water curriculum outcomes.

*Table 6.2 A Journey in Place and Water curriculum outcomes.*

<table>
<thead>
<tr>
<th>Subject</th>
<th>Curriculum outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>English</strong></td>
<td><em>EN1.1A</em> Communicates with a range of people in informal and guided activities demonstrating interaction skills and considers how own communication is adjusted in different situations.</td>
</tr>
<tr>
<td></td>
<td><em>EN1.2A</em> Plans, composes and reviews a small range of simple texts for a variety of purposes on familiar topics for known readers and viewers.</td>
</tr>
<tr>
<td></td>
<td><em>EN1.10C</em> Thinks imaginatively and creatively about familiar topics, ideas and texts when responding to and composing texts.</td>
</tr>
<tr>
<td></td>
<td><em>EN1.11D</em> Responds to and composes a range of texts about familiar aspects of the world and their own experiences.</td>
</tr>
<tr>
<td></td>
<td>(BOSTES, 2012b)</td>
</tr>
<tr>
<td><strong>Science</strong></td>
<td><em>ESS1.6</em> Identifies and describes ways in which people and other living things depend upon the Earth and its environments.</td>
</tr>
<tr>
<td></td>
<td>(BOSTES, 2012d)</td>
</tr>
<tr>
<td><strong>Visual Arts</strong></td>
<td><em>VAS1.1</em> Makes artworks in a particular way about experiences of real and imaginary things.</td>
</tr>
<tr>
<td></td>
<td><em>VAS1.2</em> Uses the forms to make artworks according to varying requirements.</td>
</tr>
<tr>
<td></td>
<td>(Board of Studies, 2001)</td>
</tr>
</tbody>
</table>
Communication with a range of people during informal and guided activities is the focus for outcome EN1.1A. This outcome was assessed in teachers’ anecdotal records and significant developments in communication were mentioned in a high percentage of the children’s formal school reports. Play, manipulative and construction experiences throughout the unit ensured children had time to experiment with their oral language communication skills. The case study results indicate children were able to communicate and interact with their peers using oral language with continually improving proficiency in PBOL. The communication focused outcome, EN1.1A was completed to a higher standard than would be expected when completing general classroom activities. One reason for this improved proficiency could be the greater time children were allowed to engage in play and develop their communication skills.

Planning for writing is important at this stage of children’s development as reflected in EN1.2A. The yarning stick, constructed in Session 2 (6.3), was used as a planning tool for writing. Initially developing oral language was paramount in yarning stick construction. The use of nouns and related adjectives to describe the places were central to the language being developed. When it came time to complete written sentences about the school grounds the children touched the items on their yarning stick to remind them about the places they had visited. The quality of sentences and increased range of vocabulary signifies the yarning stick activity was an effective way to fulfill the outcome EN1.2A.

The emphasis on communication in play saw outcomes EN1.1A and EN1.2A effectively completed during the Stick Men session. In the Stick Men activities the children’s enthusiasm to write words and phrases on the pieces of paper to label constructions was somewhat unexpected. They used unknown, complex words, which they would not have used in their classroom workbooks. Outside there was no fear of failure as making mistakes had no lasting consequence because the pieces of paper were not part of their formal work in their books. Their written work was not checked for accurate spelling nor was it corrected. Writing was experimental and children were able to respond to a known text in an individualised way, as recommended in outcome EN1.11D.
When outdoor experiences were completed in conjunction with indoor lessons, a high yield of learning outcomes was visible. Curriculum outcomes achieved in The Expedition learning sequence were extensive and all the English outcomes in Table 6.2 were covered. Play experiences and formal lessons worked in tandem to increase engagement, communication, imagination, creativity, contextual knowledge and oral language development (EN1.1A). Providing a stimulus for learning prompted longer, more detailed writing than was completed in general writing samples. Utilising photographs from the outdoor experience as a planning tool generated interest and a stimulus of what to write in their sentences (EN1.2A). The children could write about their actual experiences, rather than relying on vicarious situations or set formats provided by the teachers (EN1.10C; EN1.10D). The teachers’ realised English academic outcomes in Table 6.2 were completed to a high standard, due to the effective transfer of learning between indoor and outdoor learning environments. A finding also reported in the Science subject.

Science

Science outcome ESS1.6 content was covered in the classroom and the outdoor environments. For example in the water cycle was explicitly taught through classroom demonstrations, experiments and video clips. Knowledge of the water cycle was transferred into localised authentic contexts during the water walk and audit sessions. Children could identify water features they depended on, in reality rather than ones in text books or imagined situations.

During the water photo elicitation interviews children exhibited a rudimentary understanding of the water cycle. Such as “The photo has dark clouds. Water comes out it gets bigger” and “Water is in them. It is going to burst out I think”. Additionally, children described elementary facts of how water impacted on their lives. They explained their understanding of the functions of the water, bubblers and hoses in the school. For example “The water tank is big and it makes water around the school. The bubblers would not work without the tank” and “The pipe runs out water and the water gets a free fall. The pipe goes out to the ocean”. Insights into how water impacts on the growth of living things were also evident in statements such as “I took a photo of the plant as they need water to survive”. Assessing these responses, it can be derived Science outcome ESS1.6 was effectively covered by
utilising both indoor and outdoor experiences. However, it is also noted assessment of ESS1.6 was not deep or thorough enough to ascertain individual learning knowledge growth.

**Visual Arts**

Throughout A Journey in Place and Water the class made artworks about experiences as outcome VAS1.1 stipulates. Outdoor activities provided opportunities for children to observe and draw based on their own authentic experiences. Much of this learning was incidental and experimental. Drawing symbols of the weather in the sand and creating ephemeral artworks of the river allowed children to explore materials.

In the outdoors, children had great freedom to create artworks. While this allowed creativity to develop it was not always useful for teaching explicit art skills and VAS1.2 was not completed to a high standard. For example there was no teacher direction as to how to draw observations of weather or in the technique of how to use the charcoal pencils provided. As a result, the quality of the children’s weather observational drawings was assessed to be of a lower standard than generally produced in a standard classroom art lesson. The anecdotal teacher assessments regarding these artworks are largely subjective and formal assessments during this term were lacklustre. Annie and I recognised this and aimed to assess art outcomes more completely in subsequent terms.

**Integrated Learning**

Personal Development, Health and Physical Education (PDHPE) is taught in NSW using the guidelines of the Board of Studies Syllabus and associated Modules of Work (Board of Studies, 1999b; 1999a). Previous research recognises the potential outdoor learning has for developing physical education outcomes and is considerable (Fjørtoft, 2001; Gray & Martin, 2012; Groves & McNish, 2011; Knight, 2009; Munoz, 2009; Mygind, 2007; Truong, in press; Waite, Bølling & Bentsen, 2015a). PDHPE was not a formal component of the outdoor learning program that was assessed in this case study, however it was recognised as an area of integrated learning.
In A Journey in Place and Water fundamental movement skills and gross motor capabilities were specific areas of the curriculum highlighted for outdoor learning, as shown in Table 4.2 Year One Outdoor Learning Overview. In the case study, children demonstrated skills featured in the active lifestyles strand of the PDHPE Syllabus (Board of Studies, 1999b) such as participating in obstacle courses, power walking, applying movement skills in fun games and activities and participating in recreational activities. Locomotor skills the children engaged in during playful learning were running, jumping and climbing.

Additionally, while not included in the outdoor learning curriculum, the interpersonal relationships strand of the PDHPE Syllabus (Board of Studies, 1999b) was significant in the first term of PBOL. The collected data depicted that children in outdoor learning were able to: recognise individual needs, show care and trust in their play, and engage in positive relationships. Developing interpersonal skills is well recognised as a salient benefit of outdoor learning programs (Dillon et al., 2005; Hartmeyer & Mygind, 2015; Knight, 2009; Murray & O’Brien, 2005; Mygind, 2007; O’Brien & Murray, 2006; O’Brien & Murray, 2007; Slade et al., 2013). Additionally, communication skills identified in the PDHPE Syllabus (Board of Studies, 1999b) were also covered in the completion of outdoor learning activities. Skills such as active listening, communicating needs and wants, expressing concerns, communication in group situations, assertiveness and self-control were key observations of the students’ development throughout the term. Similar findings have been reported in the literature (Kennedy, 2001; Knight, 2009; O’Brien & Murray, 2006; O’Brien & Murray, 2007).

These physical, interpersonal and communication aspects of the PDHPE Syllabus (Board of Studies, 1999b) contribute to the development of children’s overall wellbeing. The NSW Department of Education and Communities (2015) purport in “The Wellbeing Framework for Schools” that being in good physical health, engaging in positive relationships and being able to communicate contributes to wellbeing, which is vital for maximum learning potential.
6.11 A Journey in Place and Water - Wellbeing.

Within the emerging wellbeing theme identified paramount aspects are supported by the considerable previous research completed regarding outdoor learning (Beames et al., 2012; Dolan, 2015; Kellert, 2012; Knight, 2009; Laird et al., 2014; Mannion et al., 2015; Slade et al., 2013, Waite et al., 2015b). However this discussion builds on and furthers the existing knowledge of group dynamics, increasing social bonds and self-confidence rather than repeating it. Hence the following section focuses on the potential outdoor learning has for building positive relationships, independence and responsibility, resilience, risky play and self-regulation and parental involvement.

6.11.1 Positive relationships.

In the case study various individuals began taking on roles as leader, constructor, finder of materials, writer or in some cases follower. Children were increasingly observed collaborating when making constructions and contributing to shared decision-making. The findings pertaining to the group dynamics in the case study are not new and bear striking similarities to those reported throughout the early Forest School research (Murray & O’Brien, 2005; O’Brien & Murray, 2006; Slade et al., 2013). During PBOL activities, children were able to practice skills for maintaining friendships, which the PDHPE Syllabus (Board of Studies, 1999b) advocates.

Forming new friendships emerged as paramount in the initial term of outdoor learning. The pro-social behaviours such as giving, collaborating, helping and sharing are known to be fostered in outdoor activities (Knight, 2009). Hartmeyer and Mygind (2015) acknowledge the forest setting in udeskole is an important element for children when choosing new playmates. These findings also espouse that the outdoors environment affords children the opportunities to make new friends that the indoor classroom does not. During initial outdoor sessions, children worked individually or in small groups of up to three children based on who were their closest friends. Correspondingly, throughout the Black Cockatoo session Mario and Griffith made birds’ nests individually. As the activity progressed they placed a wooden plank between them and Mario explained his actions to me when he said “We built bridges between our nests so we could be friends”. A positive relationship...
was formed as Mario and Griffith learnt to value each other’s contributions to their own constructions.

Towards the end of the first term of outdoor learning, larger groups of up to seven children working together became commonplace. Children started choosing to work with others who were outside their general friendship circles. Supporting the increasing arrays of relationships in the case study Hartmeyer and Mygind (2015) also found in the outdoors children “More often played with different pupils than those they would normally choose at school” (p. 6). Groups by the end of the term were formed irrelevant of whom the children may consider as close friends. Children were regularly observed displaying cooperation in group activities and developing friendships with their peers as suggested by the PDHPE Syllabus (Board of Studies, 1999b).

While bonds with their classmates became stronger so did the relationships between the children and adults present. The outdoors has been recognised as a place in which teachers and their students can form bonds (O’Brien & Murray, 2006; Wattchow & Brown, 2011). The Wellbeing Framework for Schools (NSW Department of Education and Communities, 2015) advocates for positive relationships between children and their teachers. Additionally, the PDHPE Syllabus (Board of Studies, 1999b) also recommends children learn skills for interacting with and developing relationships with adults. Taj offers an example of a child whose relationship with teachers flourished as a result of outdoor learning. He rarely offered insights into his home life and yet in the outdoors he spoke freely with adults about his family, such as when he spoke about making fires with his father. Taj engaged in regular conversations with the teachers in outdoor learning which enabled him to make bonds that may not have occurred in the traditional classroom.

6.11.2 Independence and responsibility.

At the start of outdoor learning the teachers noted that independence skills amongst the children were poor and this was evident in teacher observations when they compared to regular standards of their previous Year One classes. A high percentage of the class lacked the initiative to look after their own possessions and complete
activities without guidance. For example, during the yarning stick session adult support was needed to guide children around the school and attach items to their sticks. Leadership was primarily in the adults’ hands as children lacked initiative to complete unfamiliar tasks. At Bundanon, children required significant support to put shoes back on and shake sand off. Annie and I discussed the need for individuals to see themselves as responsible and capable of making their own decisions. Modifications to our emerging PBOL pedagogy were henceforth aligned to promote responsibility for learning. We adopted the position of Beames et al. (2012) for the remainder of the program, who state “One great strength of outdoor learning is that it is possible to provide opportunities for planning, decision making, and responsibility taking that transforms student learning into a more active enterprise” (p. 23). Children were encouraged at all times to adopt these pivotal roles within subsequent PBOL sessions.

In the case study the intentional shift of responsibility from adults to the children in the case study occurred in The Expedition. Supporting classroom lessons occurred before the outdoor learning session to ensure the children collaborated in the planning of outdoor activities. The class was responsible for mapping out their route, organising their possessions and engaging in shared decision making along the route. Annie instilled in the children a sense of responsibility and confidence throughout the sequence as her role shifted to one where she accompanied the children rather than led them, as Loynes (2002) suggests is preferable for outdoor learning. Furthermore, O’Brien and Murray (2006) argue “Increasing confidence can also lead to a child’s greater independence and a desire to explore further than before” (p. 27). My observations of The Expedition note children confidently leading the walk to explore the school grounds to an extent that had not occurred previously. Additionally, they also displayed increased responsibility for learning, ownership of decisions and leadership as they independently discovered the school grounds by following their maps.

The PDHPE Syllabus (Board of Studies, 1999b) recommends teachers program activities to “include a variety of challenging learning experiences that develop students’ confidence, enthusiasm, enjoyment and independence in their learning” (p. 52). Development of independence for learning was also evident to the teachers in
the Water Audit. In this session, the majority of children were able to walk around the school in small groups without direct teacher supervision and independently choose their own route. During the Stick Men session, the students made group decisions, organised themselves and completed work confidently.

The examples of independence and responsibility are important as Beames and Ross (2010) recognise there is a “growing support for education that is cross-curricula, locally relevant and involves a high degree of student responsibility”. However, there has been little formal research conducted in primary school outdoor learning to ascertain a full picture of the potential of imparting children with responsibility. As such this is identified as a substantial research gap, which has also been indicated by Beames and Ross (2010). When developing independence in children, resilience and self-regulation are impacting factors to consider.

6.11.3 Resilience, risky play and self-regulation.

Risky play, such as jumping on the boulders or logs and climbing the trees, was not allowed during break times at the school. Consequently, during initial sessions children were apprehensive about these activities. Once reassured by the that jumping, climbing and risky play were allowed in outdoor learning, the children gradually began to participate in more adventurous physical challenges. A finding also advocated by Knight (2011) who recognised support from a trusted adult helped children overcome physical challenges.

At Bundanon, a group engaged in more risky play as they dug in the deeper water, while others rolled down the sand dune. Without the additional adult support at Bundanon, the risky play could not have occurred as children were not yet monitoring or controlling their own actions. As a result, these risky behaviours were difficult to manage, as individuals did not self-regulate to ensure their own safety.

The ability for children to self-regulate behaviours is seen as a paramount aspect of wellbeing in NSW Schools (NSW Department of Education and Communities, 2015). Self-regulation includes children being able to orientate, monitor, control and reflect on their own experiences (Hornstra et al., 2015). Teachers in innovative
learning environments are known to develop children’s self-regulation as they focus on collaboration, interaction and meaningful experiences. Maynard (2007) suggests that children’s ability to self-regulate in outdoor learning means they are able to determine their own actions.

Children developed confidence in their gross locomotor skills (Board of Studies, 1999b) through active engagement in playful learning. As the school term continued a higher percentage of children engaged in challenging physical skills. Children exhibited an increased confidence outdoors and the opportunities for risky play it afforded them. Mannion et al. (2006) suggests that confident individuals are able to assess risks, which is a finding the case study supports. Additionally, the class was developing their ability to self-regulate and no longer needed close adult supervision to swing, climb, jump or run in challenging play.

6.11.4 Parental involvement.

From the beginning of outdoor learning parents were invited to all sessions and it is argued for this reason parental involvement in the program was consistent. Griffith’s mother was present at the initial and most of the subsequent sessions throughout the term. She had arranged her work and family holiday schedule to ensure she could attend whenever possible. This mother set the precedent for all parents involved in the program. She attended in dual roles as a participant and as extra support for the teacher.

The parents in the case study were unlike those in the research of Kopelke (2012) where the attending parents imposed limitations, such as going inside when it rained and not letting children out of their sight. Instead, parents in the case study encouraged the children to get dirty, learn for themselves and make mistakes. Annie established this approach during the first outdoor session each parent attended. Participation by parents in the program peaked at nine on the initial trip to Bundanon. Findings from this day indicated that the greater number of adults present allowed the children to have a higher degree of freedom in activities. Again unlike the research of Kopelke (2012) who found parents in his environmental education program exaggerated perceived risks, the parents in the case study encouraged
adventurous play and risk taking. Examples at Bundanon include promoting water play and rolling down the sand dune. The high percentage of parental involvement meant children could engage in challenging risky play without being too far from adult support.

Parental involvement in primary schools is an under researched phenomenon. A comprehensive search of parents assisting in classrooms provides very little recent or relevant research. However, it is recognised by Edwards & Warrin (1999) that “The importance of parental involvement in their children’s education, particularly when pupil underachievement is likely, appears largely uncontested in schools” (p. 325). Additionally, Craig (1998) sees parents as a ‘salvation’ for educational woes as their presence in classrooms has favourable outcomes.

The emergent theme of parental involvement in outdoor learning was unexpected. Countless variables impacted on the high degree of involvement such as the teachers existing relationships with parents, the parents work schedules, the fact that it was a regional community and for the most part, parents knew each other and the accessibility of sites for parents with young children. While beyond the scope of the data collected, parental involvement in outdoor learning is an area for further research potential.

6.12 A Journey in Place and Water – Making connections.

Making connections emerged as a theme in the children’s informal interviews and photo elicitation data. Key areas in the theme to be discussed are children’s background knowledge and past experiences, connecting home and school, environmental connection and Indigenous connection.

6.12.1 Background knowledge and past experiences.

In the pre-program questions, children connected what they thought would happen in outdoor learning to past experiences. For example, Bruce stated he wanted to climb a tree in outdoor learning, which turned out to be something he regularly did at home. Dolan (2015) argues children build a “wide knowledge base about the world, near
and far, through a range of direct and indirect experiences” (p. 4). The case study classes past direct and indirect experiences meant each child had an individual foundation for the development of understandings within PBOL.

The comparison of Julia and Henry’s “Thoughts on water and weather” transcripts in Table 6.1 Thoughts on water and weather, reveal that their perceptions of phenomenon are based on individual past experiences. Julia’s transcript reflects her Indigenous family and the lessons her grandmother taught her. While Henry’s transcript reflects his experiences as a small child living on huge family farms during times of drought. His parents’ current ownership of the local farming produce store also contributed to his understanding that during drought time intensive methods are used to feed livestock. Julia and Henry’s responses to the same question are vastly different as a result of their background knowledge and experiences.

Children in the case study built new understandings from their past experiences and as a result no two children constructed new learning in the same way. Thorburn and Allison (2010) acknowledge “valuable experiences out of school need to link to further experiences in school so that wider learning connections are revealed to students” (p. 102). Reflecting on and sharing past experiences was an integral component of PBOL. For example when sharing experiences about water in the photo elicitation, bringing resources from home to sessions and sharing incidental stories about their connection to the Shoalhaven River.

6.12.2 Connecting home and school

Lily was connecting outdoor learning experiences to her home life and her mother reported her re-enacting outdoor sessions in their backyard. For example in her articulation of the water cycle that was evident in her photo elicitation during the Water Audit session. Similar findings have been established by O’Brien and Murray (2006) and Thorburn and Allison, (2010) who found after outdoor sessions children would choose to complete more nature based activities at home. Additionally, Lily also transferred her home life to school such as bringing mini projects about nature to school to share with her classmates, these included photographs of places she had visited with her family. She was effectively exchanging learning between home and
school environments. In outdoor learning, Beames and Ross (2010) postulate learning should be “transferrable to other areas of formal and informal learning, both within and out of the school” (p. 102). For Lily outdoor learning sessions resonated throughout her life including her environmental connections.

6.12.3 Environmental connection.

In the initial outdoor learning sessions the class had little knowledge of the school grounds beyond the small area of the playground they directly utilised. This was realised when children did not know where to go to find materials in the yarning stick activity. When children built their expedition maps of the school grounds, they constructed familiar features such as the Black Cockatoo path, their Kindergarten classrooms and the trees they played under each break time. Hence, at the beginning of the outdoor learning program it was realised children were only connecting with familiar and known places in the school grounds. By the time of the Water Audit session, children had a greater understanding of areas in the school grounds and were able to access them to complete tasks with increasing independence. The regular sessions in the school grounds enabled the children to quickly gain understandings of, and form meaningful attachments to, the entire school site. Mannion et al. (2006) also found, connection to outdoor places occurs through regular engagement in them.

During the Water Walk session, children walked to the Shoalhaven River. It was a location familiar to the class due to its proximity to the school that families often visited out of school hours. Bruce said, “Look I am close to my house”. Lily knew as we came close to the river, “We are going to see the Dragon Boat shed and the big cliffs” and as we sat at the river’s edge “When it floods it goes up higher”. Bruce and Lily were attached to the river environment due to their regular engagement with it.

Loebach and Gilliland (2016) espouse for children, “Active and regular engagement with their neighborhoods can also foster children’s attachment to their local ‘place’ ” (p.3). In this case study the children begin to recognise specific contextual details of places the more time they spent in them. I listened to the class discussing the similarities of the rocks on the Water Walk to the ones they had seen at Bundanon, the children connected that it was the same river in both outdoor learning locations.
Chawla (2015) argues when children learn about nature through exploration and engagement a sense of connection and understanding develops. Additionally, in the case study children began connecting local environments to aspects of Indigenous story.


Making connections to Indigenous story was identified as a minor emergent theme during A Journey in Place and Water. The class had an autonomous respect for the stories Betty, Aunty May and Aunty Sally told. Children began to make rudimentary connections between the stories and their lives. When the class went to the Shoalhaven River, children noted the land features they could see featured in the *Black Cockatoo* story. Cameron (2003) recognises there are Indigenous stories that connect us to place and people. Furthermore, Dolan (2015) believes, “By giving places a story, children can understand what has happened to a place (geographically, environmentally, culturally, historically) and can develop their own connection with a place” (p. 9). Connecting to place through story was a concept that became common as the case study progressed.

6.13 Conclusion.

Throughout the first term of the outdoor learning, significant findings emerged to direct the remainder of the program. Most saliently was the ability children had to focus on curriculum tasks in the outdoor environments. The class exhibited on-task engagement, which ensured mandatory subject outcomes were completed.

PBOL curriculum in the first term of sessions highlighted that English outcomes could be covered in an outdoor environment. The play opportunities enabled significant language vocabulary development and heightened communication skills. When writing was linked to outdoor experiences it was evident children were eager to write. These initial findings meant that subsequent terms included a greater parameter for including both verbal and written activities in alignment with English curriculum outcomes.
The practical Science skills learnt in the initial term of outdoor learning promoted that the subsequent terms should include fieldwork experiences. Real life situations regarding the water cycle enabled the children to learn about concepts in familiar environments. The extent of the class’ knowledge growth indicated that Science concepts could be effectively taught outdoors and in future terms the same idea of direct experiences to teach curriculum outcomes could be adapted to the HSIE content.

In regards to the attainment of Visual Arts skills in the outdoors, the first term of outdoor learning showed considerable outcome attainment. The children were able to use a greater variety of materials due to the unstructured outdoor environment. However, completing Visual Arts activities outdoors in subsequent curriculum would require more explicit instruction to ensure mandatory academic outcomes were fulfilled.

There were also obvious areas for refinement becoming apparent in the continuing development of the PBOL pedagogy. Importantly, the need for a transfer of learning between indoor and outdoor lessons became pivotal to maximising academic outcome attainment. Emerging, was the knowledge that repeated sessions were required to ensure children were connected to place, and afforded the opportunity to gain a deep knowledge of their surrounds. Developments that were considered in the planning and delivery of the Landscapes unit.
Chapter 7: Results - Landscapes.

7.1 Introduction.
7.2 Session 8 - Patterns and Sounds.
7.3 Session 9 - Diary of a Wombat.
7.4 Session 10 and 11 - Exploring Ben’s Walk.
7.5 Session 12 - Booderee National Park.
7.6 Session 13 - Wet and Dry Environment Triptych.
7.7 Session 14 - Revisiting Ben’s Walk.
7.8 Landscapes - Introduction to discussion in emergent themes.
7.9 Landscapes - Curriculum and engagement.
  7.9.1 Behaviours for learning.
  7.9.2 Focus on learning intention.
  7.9.3 Taking risks in learning.
  7.9.4 Transfer of learning.
  7.9.5 Curriculum outcomes.
7.10 Landscapes - Wellbeing.
  7.10.1 Positive relationships.
7.10.2 Resilience, risky play and self-regulation.

7.11 Landscapes - Making connections.

7.11.1 Background knowledge and past experiences.

7.11.2 Environmental connections.

7.11.3 Connecting to animals.

7.12 Conclusion.

7.1 Introduction.

The integrated outdoor learning unit entitled “Landscapes” was conducted during Term 3, in the winter to spring months of June through to September. There were two playground sessions and five off-site ventures, which was comprised of three sessions at Ben’s Walk and a day each at Bundanon and Booderee National Park. The focus subjects completed during outdoor learning lessons were English, Human Society and Its Environment (HSIE) and Visual Art. Pivotal to developing knowledge of local landscapes were the immersive learning activities and direct engagement within authentic environments. Discovering patterns, sounds, textures and specific environmental features were core tasks repeated throughout the outdoor learning unit during the term.

7.2 Session 8 - Patterns and Sounds.

The class explored patterns and sounds of the Black Cockatoo area within the school grounds. For the duration of one hour children searched the area for natural materials of interest to them. They sorted these materials into categories to create personal environmental patterns according to colours, shapes and textures. For example groups of leaves in similar colours, mixed natural materials of similar shapes or bark of similar textures.

As a stimulus activity, the children spent five minutes lying in silence, listening to the surrounding noise. Using the information garnered from the silent activity, students attempted to identify what they heard and to classify the noises. Sounds were classified into the categories of birds, pets, people, machines and plants on a teacher prepared worksheet.
Returning to the classroom children viewed photographs of Andy Goldsworthy’s ephemeral artworks on the iPad Art Room website (iPad Art Room, 2013). The artist Andy Goldsworthy was chosen for study so the children could gain inspiration from his methods. He was chosen for use in the outdoor program as his works are suited to the interest level of the age of the children in the case study, they are readily available online and his techniques are adaptable to the playground where they would be recreated. Andy Goldsworthy’s artworks, harnesses natural materials to create patterns with shape and colour. Brief instructions on how to complete artworks in the ephemeral style were given to the class. The children then went outside for one hour to make individual Andy Goldsworthy inspired artworks.

Findings

Throughout the session I completed scheduled and general observations, which included the use of photographs. During the beginning of the session I recorded in my field notes that children independently completed their explorations of the sound and patterns of the Black Cockatoo area. They remained engaged and focused on the designated learning intention, without the need for close adult supervision. The class displayed responsibility for their own learning and self-regulated their behaviours to complete the set task.

Henry was observed while he collected and sorted natural materials during the beginning section of the session. When reviewing Henry’s GoPro footage, I heard a constant commentary relating to the colours, shapes and patterns surrounding the Black Cockatoo path. His footage provides an example of a child utilising direct experiences as a catalyst to experiment with new descriptive environmental vocabulary, notably this could not occur inside a classroom. An example of Henry’s chatter is included as Table 7.1 Henry’s commentary. Additionally, as he wrote labels for his collected items Henry attempted to spell unfamiliar words. At one point he says, “How do you spell that”, “I’ll just have a go”. This is important as attempts at spelling unknown words are a significant aspect of writing development, that occurs when children are not afraid of making mistakes and take risks in their learning. Generally, in the outdoors environment it was found the students were more willing to engage in experimental writing. Henry is an example of this core finding.
Table 7.1 Henry's commentary.

<table>
<thead>
<tr>
<th>Henry</th>
</tr>
</thead>
<tbody>
<tr>
<td>“This is sort of rocky but smooth” “I am digging it very deep”</td>
</tr>
<tr>
<td>“What sort of colour would it be” “Brown I don’t know” “Light brown”</td>
</tr>
<tr>
<td>“It feels rough here” “And rough and hot here that’s odd”</td>
</tr>
<tr>
<td>“I feel a bit of wet”</td>
</tr>
<tr>
<td>“What colour does that look like?”</td>
</tr>
<tr>
<td>“I am going to dig a bit deeper and see if it gets hotter – It’s getting colder as you go deeper”</td>
</tr>
<tr>
<td>“It’s a little bit grey and a little bit blue”</td>
</tr>
</tbody>
</table>

During the Andy Goldsworthy component of the session, I observed the class independently following outdoor learning routines. The self-regulation they employed to use materials was testament to their increasingly astute responsibility. They were aware of and consistently followed routines autonomously, for example using sticks to the stipulated requirements of an arm’s length as seen in Figure 7.1 Stick length check.

Additionally, field notes from the second section of the session, record the class as having a clear understanding of the learning intention to complete an ephemeral artwork. Andy Goldsworthy was a prominent influence on the children’s creations, with colour, shape, patterns, balance and collections akin to his style, featuring in their designs. When I asked Henry what he was doing he remarked:

“Building art out of nature and writing down what kinds of things we can feel and shapes and colours and I think we are making stuff out of nature. Not like paint. And um I am digging a big hole so here is a big enough space so they can stack on top of each other so they can make a really cool statue”.

Figure 7.1 Stick length check.
These observations are significant as they infer that the children were becoming increasingly responsible for their own learning by closely adhering to the provided instructions.

Individual creativity was visible in photographs I took of the Andy Goldsworthy artworks. Children employed a variety of natural materials to design artworks to a high standard. The activity was salient within the program as it enabled the class to experiment using different mediums to those which are used during indoor art sessions. Examples of the artworks are seen in Figure 7.2 Andy Goldsworthy artworks.

Figure 7.2 Andy Goldsworthy artworks.

Children created their artworks individually, yet many chose spaces close to their friends and talked while they manipulated materials or shared resources. During this activity, Annie and I noted the network of friends within the class was increasing and children chose to collaborate with many others. My observational notes recorded almost all of the class working in close configurations, as is seen in Figure 7.3 Andy Goldsworthy friends.

Figure 7.3 Andy Goldsworthy friends.
Inside the classroom, focusing on tasks was particularly challenging for Jordan. School behavioural data indicate that over the duration of Year One he had the third highest amount of incident notifications in the class. Throughout the beginning part of the school year Jordan had received multiple behaviour warnings indoors. However, outdoors he received no behaviour warnings or official notifications. This is exemplified in this session, as while completing the art activity he was focused on the task. His ability to complete this artwork is testament to his responsibility, engagement and self-regulation during the outdoor learning session. When asked to explain his ‘on task’ behaviour in the session he responded, “Because it is fun and you get to do fun outdoor learning stuff. You get to make the lava dust and whatever you want”. The artwork he created is represented in Figure 7.4 Jordan’s Andy Goldsworthy artwork.

Throughout the art activity my observations recorded three children not completing the task; Taj was one of these children. The Indigenous Cadet Teacher for the school filmed Taj and his friends from a distance. Footage reveals the three boys on the edge of the learning space jumping over dirt mounds and running between bushes. They proceed to go out of bounds to the chicken coop and into a completely different section of the school. Approximately ten minutes passed when a school assistant found them in the toilets and escorted them back to the outdoor space. Taj is an example of one child who was not exhibiting improvements in his behaviours for learning, self-regulation, independence or responsibility consistently during outdoor learning sessions.

The fact the children were missing was recorded only in the data of the Indigenous Cadet Teachers filming of the group, data that was not revised until after the session
by myself in the role of researcher not teacher. Annie did not realise Taj and his group were out of bounds during the session, hence the lack of formal behaviour notification. Had she realised their absence a notification would have been recorded. The incident promotes that outdoors children can wander away from the group, without the teacher noticing. While in this event there were no injuries or major problems when the children were missing, there could have been. This event provides data promoting that the more relaxed physical boundaries of the outdoors can lead to a lack of supervision if children remove themselves from the space undetected.

7.3 Session 9 - Diary of a Wombat.

The Diary of a Wombat session was a full day venture to Bundanon, with the focus on exploring the landscape of the property. This was the second visit to the property for the students, occurring two months after the initial excursion. Annie read the picture book *Diary of a Wombat* (French, 2002) to the class and led them in a discussion regarding wombats. Children then looked at nocturnal wombat photographs taken at the Bundanon property. The Bundanon education officer, Elizabeth, guided the class through an art process to depict wombats using paper, crayons and paint. To conclude this section of the day Annie told the class a simple local Indigenous story about wombats.

The class walked through the Bundanon farm paddocks to the river, exploring and climbing in wombat holes as they went. When they got to the riverbank beach, the children moulded water and sand to make wombat holes with their friends and the five parents who were present. The remainder of the day was cancelled due to dangerously high winds in the afternoon.

Findings

General class observations from the beginning of the day at Bundanon, depict the children as settled and attentive, listening to the story, following artwork instructions and exhibiting engagement during the drawing task. My field notes record the children presenting as focused and engaged with the specified learning intention of
the activities. Figure 7.5 Wombat observational photographs are a selection representing the responsible behaviours for learning.

*Figure 7.5 Wombat observational photographs.*

In small groups, the children constructed wombat holes and tunnels at the riverbank beach. Scheduled observations were completed on four focus children as they made their constructions. I witnessed these children engaged for the full 30 minutes duration of the activity. The parents and younger siblings attending were actively involved, working within the children’s small groups. Figure 7.6 Wombat hole supported group, depicts a parent and younger sibling working with a group to dig their holes.

*Figure 7.6 Wombat hole supported group.*

During the wombat hole building, Annie and Elizabeth experienced no issues managing the children, as seen in Figure 7.7 Wombat hole engagement. The observational notes and GoPro footage show that the class were effectively self-regulating their behaviours to complete the set task. Each child independently ensured they were dry and had brushed the sand off at the completion of the activity.
These actions represent the children’s increased ability to complete self-care procedures, which had improved markedly from the first visit to Bundanon.

Throughout the day at Bundanon, children took photographs with iPads. Their instruction was to take photographs of what they saw that was of interest to them. Photographs were taken in different locations and by a range of children. Therefore, the images were only analysed to ascertain the general focus within the class. When I examined the 232 photographs, the focus was unmistakable. In total, 71% of the images were concerned with wombats. The breakdown of the photographs is presented in Figure 7.8 Diary of a Wombat photograph totals.
Throughout the day at Bundanon Mario wore a GoPro. His footage provides a complex example of engagement, focus and incidental learning. Footage from the introductory activities is a commentary on his thoughts about wombats. On completion of the art activity Mario immediately asked his friends to play “wombats”. They say “no”. Instead an impromptu battle against the fireweed, akin to a computer game, begins. Along the route toward the river sound effects, chatter regarding the battle and children running like computer game characters feature. When I asked Mario about what he was doing he said he was, “Jumping over the fireweed and pretending we were in a video came with Finn”. While at the riverbank, Mario’s GoPro footage reveals his group avidly digging in the sand to construct tunnels. For the duration of the activity his group are acutely focused on building tunnels and digging. There is much excitement in the group and Mario shouts, “We found water!” The observational data signify he was completely focused on the learning intention provided, however he engaged in different activities to those set by Annie, to complete the outcomes.
Upon returning to school, I interviewed Mario about his day at Bundanon. My analysis of the subsequent transcript categorised his responses into phrases about the: Shoalhaven River, water and tunneling for water, his friends, fireweed, video games, kangaroos, wombats and cows. Half his responses were about the Shoalhaven River, water and tunneling for water. Mario talks about reaching the sandstone, constructing tunnels and levels of groundwater. To explain why he knew about these ideas he finds an information text in the classroom library he had read.

Mario’s friends are significant to his experience and are included in a quarter of the phrases, he says, “Finn taught me that when you go down really deep you find water”. Furthermore, Mario refers to animals in a quarter of his interview responses. When asked if he had touched the animals he answers “No”. He makes connections to his background knowledge in regards to why he could not touch the animals, their habitat and how the Bundnaon site provides “everything they need”. An excerpt from the interview is provided in Table 7.2 Mario Diary of a Wombat interview.

Table 7.2 Mario Diary of a Wombat interview.

<table>
<thead>
<tr>
<th>Mario</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A</strong> - Did you touch the animals?</td>
</tr>
<tr>
<td><strong>M</strong> - No.</td>
</tr>
<tr>
<td><strong>A</strong> - How come?</td>
</tr>
<tr>
<td><strong>M</strong> - I couldn't, and anyway a kangaroo would jump away and a wombat would wake up and run away into its burrow and a cow, that's ok, but they were in an electric fence.</td>
</tr>
<tr>
<td><strong>A</strong> - Now do you think the animals we saw out at Bundan-non, do you think they like it out there?</td>
</tr>
<tr>
<td><strong>M</strong> - Yes.</td>
</tr>
<tr>
<td><strong>A</strong> - How come?</td>
</tr>
<tr>
<td><strong>M</strong> - Because it's got everything they need.</td>
</tr>
<tr>
<td><strong>A</strong> - What about if those animals were in downtown Nowra, how would they feel there?</td>
</tr>
<tr>
<td><strong>M</strong> - Bad.</td>
</tr>
<tr>
<td><strong>A</strong> - How come?</td>
</tr>
<tr>
<td><strong>M</strong> - Because they wouldn't have everything they need.</td>
</tr>
</tbody>
</table>

In contrast to Mario’s complex example of focus on the learning intention at Bundanon is the example of Lily, who very clearly links her experiences with the
stimulus texts. She articulated her new interest regarding wombats during her interview on return to school. Lily grounded her experiences at Bundanon in the *Diary of a Wombat* text and bought in her own copies of the Jackie French (2002) series of wombat books, proudly displaying them as seen in Figure 7.9 Lily and her wombat books. She transferred her direct experiences at Bundanon to known texts and extended her learning on the topic by drawing pictures at home. An excerpt from her interview transcript is provided in Table 7.3 Lily Diary of a Wombat interview.

![Figure 7.9 Lily and her wombat books.](image)

### Table 7.3 Lily Diary of a Wombat interview.

<table>
<thead>
<tr>
<th>Lily</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>L -</td>
<td>Yesterday when we went to Bundanon we read a Diary of a Wombat and when I got home I looked, I was looking for my one of the Diary of a Wombat because I got a book. Then I decided to draw these pictures. (shows wombat pictures).</td>
</tr>
<tr>
<td>A -</td>
<td>Do you think you would be so interested in wombats if we hadn't been to Bundanon?</td>
</tr>
<tr>
<td>L -</td>
<td>Well no. They are so interesting, not just when you read about them but when you see them. Because they are like very small and they are like cool because they can dig really big holes that you probably can’t dig unless they are so big. You can see right through them. We can’t dig like the wombats can. So I think they are really special animals.</td>
</tr>
</tbody>
</table>

### 7.4 Session 10 and 11 - Exploring Ben’s Walk.

Exploring Ben’s Walk was conducted over two consecutive weeks, employing the use of the same location, sequence of learning activities and common research methods. Data sets were aggregated due to their commonality. The two sessions began at 9am and concluded on return to school at 1pm.
The class walked to Nowra Showground Lookout to begin the Ben’s Walk bushwalk. During the first session on the bushwalk, children listened for sounds and in the second they paid particular attention to the variety of smells. At various intervals the children stopped to make observational recordings regarding sounds or smells in their Nature Journals. Once at the bottom of the valley, the class crossed a swing bridge into open grasslands. While walking along a tributary, the children observed a change in the environment, from thick bush to grasslands and then onto riverside vegetation. Upon reaching the area known as Depot Farm the class established physical boundaries to work within and a place to go to the toilet. In both sessions a whole class meditation, led by Annie, encouraged them to stop, use their senses and be still in their surrounds.

In the first Ben’s Walk session (Session 10) the class played *Kim’s Game*, where a set of environmental objects are briefly shown before the children have to use their memory to find matching items. Afterwards, they found natural materials to make maps of Ben’s Walk and the Depot Farm area. During the second session (Session 11), the children drew a compass in their Nature Journals onto which they pictorially recorded what they found in different directions of the area.

To conclude both sessions, the children left Depot Farm and walked back across the swing bridge to rejoin the Ben’s Walk bush track. On the bushwalk back to school the class paused on river’s edge to repeat the sensory activity of the day. The total distance of each bushwalk from school, along Ben’s Walk to Depot Farm and return was approximately five km.

Findings

During general observations of the Ben’s Walk sessions I recorded in my field notes the class were confidently exploring the area. While they completed the bushwalk sections, children demonstrated an inquisitive interest in the environment. Moments of sensory discovery were common, such as the image of children feeling the rocks in Figure 7.10 Exploring environmental features on Ben’s Walk.
Children are seen stopping independently to write findings in their Nature Journals in my observational video footage and photographs. They were focused and completed voluntary written work in conjunction with the set learning intention of the sessions. The class were self-motivated to complete these recordings as seen in Figure 7.11 Ben’s Walk Nature Journal.

While traversing the bush path, I observed that most of the children were able to use their gross motor skills to walk over uneven surfaces. However, a small number of children were tentative when covering the more difficult terrain such as climbing down rocks, as depicted in Figure 7.12 Ben’s Walk challenging skills. GoPro footage captures more competent children at these points offering assistance to those who required it. When crossing the suspension bridge six children were fearful to cross alone and required additional adult support. When reviewing the footage the researcher did not perceive these children demonstrated resilience to attempt the unknown situation of crossing the wobbling bridge.

During the learning tasks completed at Depot Farm field notes record the class displayed independence. Children collected items for Kim’s Game without the need
for adult support. Each child collected unique items depending on the places they chose to visit, as seen in Figure 7.13 Kim’s Game collection.

![Image](Figure 7.13 Kim’s Game collection.)

During the compass activity, each child was observed discovering places and drawing items without the need for adult support. Photographs I took highlighting their ability to complete written recordings are seen in Figure 7.14 Compass activity.

![Image](Figure 7.14 Compass activity.)

The 3D maps of Ben’s Walk varied between groups. The maps were photographed and interpreted by the children in subsequent conversational interviews. Maps represented numerous features as individuals choose to construct features significant to them. Natural features depicted included the cave, river, dry grass area and trees. The built features most frequently represented in their maps were the path and bridge visited on the walk. Lily and Henry’s maps and interpretations are included as Figure 7.15 Ben’s Walk maps. These responses highlight aspects of Ben’s Walk which were important to them and show that children interpreted the area based on their specific interests. Lily focused on the cave and wattle, while Henry focused on the bridge section of the river.
During the Ben’s Walk sessions, focus children took photographs of features they felt were important to them. Subsequent, photo elicitation interviews indicated a dominance of words or phrases to describe specific landscape features to the area. Interview excerpts from four of the focus children are included as Table 7.4 Ben’s Walk interviews. These examples are significant as they highlight the differences in how children interpreted the Ben’s Walk environment and experiences there. Accordingly the three key themes to emerge from an analysis of the children’s photographs and interpretations can be summarised as:

- Connection with nature by naming environmental features. For example: salt water, flowers, wattle pods, giant hill, Shoalhaven River and sandy beach
- Connection to animals. For example naming the animals seen including a dog, kangaroos and birds.
- Affective learning indicated by emotions, activities or making connections to their lives in relation to experiences. For example: the
bridge is wobbly and scary, nice view and I love water and we play in the bush.

However, in contrast to the focused reflections Mario connected many of his photographs taken at Ben’s Walk to imaginative thoughts. For example when he spoke about crocodiles being in the water, volcanoes and likened the environment to the computer game Minecraft.

Table 7.4 Ben’s Walk interviews.

<table>
<thead>
<tr>
<th><strong>Griffith</strong></th>
<th><strong>Jessica</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>G</strong> - It's like Bundanon but different.</td>
<td><strong>A</strong> - So that beach that was in that photo, does that remind you of any other place that we have been.</td>
</tr>
<tr>
<td><strong>A</strong> - Hold it up and show me which one, ok why is this photo your favourite one out of Ben's Walk?</td>
<td><strong>J</strong> - Yes, when, it reminds me when I went camping because there was a beach with a big hill an some broken trees.</td>
</tr>
<tr>
<td><strong>G</strong> - Because it's got a lot of good things. It's got the sand in it. It's special to me because I liked it and I just did.</td>
<td><strong>A</strong> - Do you go camping a lot?</td>
</tr>
<tr>
<td><strong>A</strong> - Ok, what does it remind you of?</td>
<td><strong>J</strong> - Yes.</td>
</tr>
<tr>
<td><strong>G</strong> - Remind me of a little bit, it reminds me of when I went fishing with my friend and he lost his hat and that was the funny part. And Bundanon.</td>
<td><strong>A</strong> - So that beach in that photo, does it remind you of anywhere that we have been?</td>
</tr>
<tr>
<td><strong>G</strong> - Because it's the river at Bundanon.</td>
<td><strong>A</strong> - How come?</td>
</tr>
<tr>
<td><strong>L</strong> - It reminds me of Bundanon a little.</td>
<td><strong>J</strong> - Because there is a little beach where we drank water and it's like normal water.</td>
</tr>
<tr>
<td><strong>A</strong> - How come?</td>
<td><strong>M</strong> - It reminds me of Minecraft.</td>
</tr>
<tr>
<td><strong>L</strong> - At the end we saw the river and there was a little sandy beach and at Bundanon there is a little sandy beach where we went in the water and it just sort of looks the same there.</td>
<td><strong>A</strong> - Oh right. How come it reminds you of Minecraft?</td>
</tr>
<tr>
<td><strong>M</strong> - Because it's a giant hill.</td>
<td><strong>M</strong> - Because it's a giant hill.</td>
</tr>
<tr>
<td><strong>A</strong> - Oh, is there a giant hill in one of the Minecraft games?</td>
<td><strong>M</strong> - Yeah I have one in one of my worlds, it goes all the way to lava and it turns out be a volcano.</td>
</tr>
</tbody>
</table>

7.5 Session 12 - Booderee National Park.

The Booderee National Park session was a full day excursion which all three Year One classes from the school attended together. Classes visited two sites in the park:
Booderee Botanic Gardens and Greenpatch Beach. The three class teachers as well as the Indigenous Education Officer Betty, Local Elder Aunty May and parents supported each class. There were rain showers throughout the day and a number of heavy downpours. Children were prepared for the expected inclement weather and had brought wet weather gear.

The morning was spent at Booderee Botanic Gardens, where the total Year One cohort split into small groups each supported by a designated adult. The provision of maps enabled groups to independently interpret and follow the garden paths. Children had a scavenger hunt photograph checklist to complete. Their task was to mark off plants as they were identified during the walk around the gardens.

Once at Greenpatch, the classes listened to Aunty May talk about the Indigenous traditions of Jervis Bay. The full Year One group then returned into their class groupings to complete the afternoon session. Each task was facilitated by a Year One teacher and the classes rotated through them. The activities were:

1. Listening to Aunty May tell *The Boastful Dolphin* Indigenous story and making sea creatures in the sand.
2. Constructing large maps on the beach to represent the natural and built environments of Jervis Bay.
3. Making boats and exploring the beach lagoon as they floated their boats.

The activities that occurred during the excursion were used as a stimulus for a sequence of information report writing lessons back at school. The class created word banks from their direct experiences at Booderee, participated in joint writing activities and published individual information reports.

**Findings**

The small groups functioned as separate units for the Botanic Gardens section of the day, under the guidance of their supervising parent or teacher. Children were responsible for following their own maps to guide their explorations. My field notes record children confidently searching for plants to complete the scavenger hunt. Often individuals I observed were venturing into the garden to touch plants and
examine the vegetation more closely. Furthermore, children marked off the plants with great attention to detail as seen in Figure 7.16 Botanic Gardens scavenger hunt.

Mario worked in a group with three children during the activities at the Botanic Gardens. His GoPro footage reveals the group discovering labels on plants, attempting to read signs and exploring plants according to texture and location. They related discoveries to their previous experiences. Some examples of the phrases used in their conversations are presented as Figure 7.17 Scavenger hunt small group work.

Figure 7.16 Botanic Gardens scavenger hunt.

Figure 7.17 Scavenger hunt small group work.

“I got the gem. It is a weird looking gem”
“It might be under that rock – it did say skeleton”
“Flame Tree. Blueberry Ash”
“Lot Kipress Pine (Cypress Pine)”
“Spa Liner …Snake Flower”
“Lot Kipress Pine (Cypress Pine)”
“Small Tree Fern. We are on a fern hunt”

A longer conversation was recorded in the GoPro footage regarding Tea Tree that engaged Mario’s group. This is especially significant as the children in this conversation make clear connections between the plants at the Botanic Gardens and their background knowledge. They link the Tea Tree plant to information regarding tea and coffee in their home environments. Additionally, the children challenge themselves and take a risk in their learning to read the unknown word ‘scattered’,
attempting a number of articulations before settling on the exact plant name. The conversation is transcribed in Table 7.5 Scavenger hunt conversation.

Table 7.5 Scavenger hunt conversation.

<table>
<thead>
<tr>
<th>Mario</th>
<th>Friend 1</th>
<th>Mario</th>
<th>Friend 2</th>
<th>Mario</th>
<th>Friend 1</th>
<th>Mario’s father</th>
<th>Mario</th>
<th>Friend 2</th>
<th>Friend 1</th>
<th>Mario</th>
<th>Mario’s father</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mario - Lemons sc sc sc</td>
<td>Lemon lemons sc sc</td>
<td>Lemon tee tree</td>
<td>Scattered tee tree</td>
<td>Can you read that?</td>
<td>I want some tea</td>
<td>Nanny used to make tea with that</td>
<td>With the leaves</td>
<td>Can that actually make tea?</td>
<td>I know where the leaves are</td>
<td>Can you make coffee out of it?</td>
<td>No not coffee</td>
</tr>
</tbody>
</table>

At Greenpatch Beach, I completed a scheduled observation of Griffith. During this time he competently climbed over the bridge railing, played in the lagoon, threw sand and engaged in risky play with his friends. Observational photographs I took at this time are included as Figure 7.18 Griffith at Greenpatch Beach. Griffith spoke to me in a semi-formal interview while he played in the lagoon and an excerpt is included as Table 7.6 Griffith’s semi-formal interview at Greenpatch Beach. His behaviours on the day and interview transcript indicate a confident child who was thoroughly enjoying his experiences.

At the conclusion of the day, Griffith, without direction went to his bag and retrieved his dry clothes, into which he independently changed. In doing this he demonstrated his increasing responsibility and ability to complete self-care tasks. He explained to me why he needed to change, “I am changing because I am wet”. This showed a marked difference from the first Bundanon visit, approximately three months earlier, when he was unable to complete these basic self-care tasks independently.
Figure 7.18 Griffith at Greenpatch Beach.

Table 7.6 Griffith’s semi-formal interview at Greenpatch Beach.

<table>
<thead>
<tr>
<th><strong>Griffith</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A</strong> - How are you?</td>
</tr>
<tr>
<td><strong>G</strong> - Wet. Super wet you have to call that.</td>
</tr>
<tr>
<td><strong>A</strong> - How are you feeling today?</td>
</tr>
<tr>
<td><strong>G</strong> - I feel good, very good. It is raining. We are near the water. We are at Booderee National Park.</td>
</tr>
<tr>
<td><strong>G</strong> - Next is when we are going to be making the boats.</td>
</tr>
<tr>
<td><strong>A</strong> - Is that good?</td>
</tr>
<tr>
<td><strong>G</strong> - Um yes because I am a really good builder and I know because I am going to go in the water.</td>
</tr>
<tr>
<td><strong>A</strong> - Tell me did anything we did out there remind you of things you have done with your family?</td>
</tr>
<tr>
<td><strong>G</strong> - Yes, bushwalking with my pa.</td>
</tr>
<tr>
<td><strong>A</strong> - Do you bushwalk often?</td>
</tr>
<tr>
<td><strong>G</strong> - Yeah pretty much.</td>
</tr>
</tbody>
</table>

During the map-making activity, I conducted general observations of the class and took photographs of what I witnessed. The rain did not seem to visibly affect the cohort and the teachers observed they displayed resilience in the frequent deluges and kept working on the task at hand. The children’s maps represented the built and natural features of the area. However, one group of children simply played in the lagoon and did not attempt to make a map. A representative selection of the maps is presented as Figure 7.19 Maps at Greenpatch Beach.
During the week following the Booderee National Park excursion the class harnessed their immersive experiences as the stimulus for writing an information report. The final published drafts of the information reports were transcribed and are included as Figure 7.20 Booderee information texts. Spelling and grammar are unaltered from the children’s original work. The samples are included to provide an example of handwriting and structure, the text can be read in the transcriptions.
Mario
Booderee is a good place to get wet.

Bruce
Booderee has trees and grass and animals. Animals are mammals because they have fur. Fur keeps them warm. They get water from the river. You can swim in it. I am happy. Greenpatch has a beach.

Griffith
(Informal markings on his page. No distinguishable letters or words evident).

Henry
Booderee is a big area with a big garden. Some of the plants have weird names like the egg and bacon tree the cheese tree and wool tree. And it has lots is lots of flowers and green fern. It is very green. It is fun. My favourite was the beach.

Julia
Greenpatch is a beach. It is very good as a jungle. I like the excursion. I ran and jump and hop and I skipped. I was amazed at the beach. I had a good a time there. It was good. Nice.

Lily
Booderee is full of plants that grown in Australia. Boderee grows trees and egg and bacon trees. Bodere is srt of like a rainforest. Bodere is home to lots of animals. Boderee has moss floors. Boderee has lots of long waterfalls. When you go to Boderee you will see some amazing thing. You will see a paper bark tree ans wattle and lots of Gum trees, bottle brush honeysuckle and berry. I felt happy because I discovered lots of new things.
These information texts were analysed by the teachers for a class assessment in reference to curriculum writing outcomes according to the Literacy Continuum K – 6 (State of New South Wales Department of Education and Communities, 2012). They were then classified as under benchmark, at benchmark and over benchmark levels as stipulated by school based writing development policies. Significantly, the results infer that outdoor experiences promote curriculum outcome attainment at a level representative of students’ academic abilities.

**Under benchmark:** Griffith, Mario and Julia’s writing was under the Year One benchmark level, as they did not fulfill mandatory criteria. Griffith did not complete any formal written work and as such has not reached the requirements of the writing task at all. Mario wrote only about his experience at one section of the park and there are no environmental details in his information report. Julia wrote two sentences about the park, with the bulk of the text recounting her experiences rather than a factual information report.

**At benchmark:** Bruce and Henry have written their information reports at a Year One benchmark level. They have written factual sentences relating to a central theme and wrote using topic vocabulary gained from direct experience at Booderee National Park. As per the set structure they have included personal statements towards the end of their writing.

**Above benchmark:** Lily has written a report above benchmark level for Year One. At Booderee she was observed recording notes about the features she saw in the environment, which she has included in her writing. Her final writing sample surpassed the writing outcomes as she drew on her knowledge of aspects of the world and experiences to compose an in-depth informative text. Lily included nouns and adjectives to provide the reader with detailed knowledge of the local environment. Additionally, her text structure adhered to the set information text format provided by the teachers.
7.6 Session 13 - Wet and Dry Environment Triptych.

The children individually created a triptych artwork to represent the local environments visited during the term. A triptych artwork has three sections each with a separate theme. In their compartments children could choose to represent any three of the places visited in outdoor learning. The choice of locations were the school playground, Nowra town centre, Bundanon, Ben’s Walk or Booderee National Park. Upon completion of their artworks, the children were required to orally describe them. The triptych activity and verbal descriptions were a curriculum assessment to measure vocabulary attainment employed for describing landscapes.

Findings

Six of the focus children completed the wet and dry environments triptych artworks. Bruce and Lily’s artworks and interpretations are provided as representative examples in Figure 7.21 Wet and dry environment triptych. Their examples include reference to personal experiences, favourite sections and aspects of each environment that resonated with them. Both Bruce and Lily have compared and contrasted the landscapes, which indicates their knowledge of specific differences within the places they had visited.
Six focus children’s transcripts were analysed to gain an understanding of vocabulary attainment regarding the visited environments. Results of the analysis are presented in Table 7.7 Wet and dry triptych analysis.

Table 7.7 Wet and dry triptych analysis.

<table>
<thead>
<tr>
<th>Names of natural environments (nouns)</th>
<th>Natural materials used in their constructions</th>
<th>Aspects of the environment (Adjectives)</th>
<th>Humans</th>
<th>Built Features</th>
<th>Animals</th>
<th>Connection to natural spaces</th>
<th>Care and protection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bruce</td>
<td>8</td>
<td>12</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Julia</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>8</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Lily</td>
<td>9</td>
<td>6</td>
<td>11</td>
<td>2</td>
<td>7</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Henry</td>
<td>17</td>
<td>5</td>
<td>14</td>
<td>5</td>
<td>1</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Mario</td>
<td>9</td>
<td>0</td>
<td>8</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Griffith</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>7</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>15</td>
<td>48</td>
<td>11</td>
<td>23</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>(29%)</td>
<td>(9%)</td>
<td>(28%)</td>
<td>(6%)</td>
<td>(13%)</td>
<td>(3%)</td>
<td>(1%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
There were 173 words utilised to articulate an understanding of wet and dry environments. Names of natural environments were in 29% of responses and aspects of the environment total 28%. Words to describe the built environments we had visited totalled 13%. The remainder of minor categories were words used to describe natural materials in their constructions (9%), humans (6%), animals (3%), connection to natural places (1%) and the care and protection of environments (10%).

The focus children’s vocabulary development, as a result of the direct contact with local places, was extensive. Children developed knowledge of exact environmental details, names of places and specifics that could not have been learnt from indoor experiences, such as looking at photographs to create word banks about environments. In our discussions Annie and I attributed the increased vocabulary development to the immersive experiences of PBOL.

**7.7 Session 14 - Revisiting Ben’s Walk.**

Revisiting Ben’s Walk aimed to reconnect children with this now familiar environment and occurred approximately one month after the initial visit. The session ran from 9am until 1pm and followed the same pattern as the previous ventures. In this session, the class stopped at the lookout to complete observational drawings of the river below. During the Ben’s Walk bushwalk, the children completed a scavenger hunt photograph checklist to identify plants. Children recorded words to describe the plants or names they invented to label them in their Nature Journals.

Once at Depot Farm, Kim’s Game was again repeated as per the earlier session. This time the game was used as a method to find materials to use in construction of mini shelter constructions. Using the knowledge gained throughout the Landscapes unit, children made small-scale shelters to suit either wet or dry environmental conditions. At the completion of the manipulative task, the class returned to school along the Ben’s Walk bush track. The entire route was once again approximately five km.
Findings

Throughout general and GoPro observations of the Revisiting Ben’s Walk session, the class displayed increased confidence when navigating the uneven sections of the bush track. I witnessed considerable enjoyment at the bridge as children danced, wobbled, jumped and ran over it. GoPro footage shows one of the many children who initially found the bridge challenging, on the second visit, wobbling the bridge and saying to her friends, “Whoo hoo I am not scared look at this”. Figure 7.22 Ben’s Walk Bridge shows the class wobbling as they walk across.

Jessica experienced issues walking over the bridge in the initial two sessions (Session 11 and 12). I spoke with her about crossing the bridge on both these explorations at Ben’s Walk and her thoughts are presented as Figure 7.23 Jessica’s thoughts about the bridge. Her comments regarding the third venture across the bridge in Session 14, are representative of her perceived increasing resilience to approach new situations.
Utilising photographs they had taken, four focus children completed photo elicitation interviews at the completion of the session. When describing the bridge area Jessica said, “Well they sort of look like bits of paper on rocks and I name it the seaweed rock’” and Griffith said, “It’s got a pirates hook on it”. These statements imply individual interpretations of experiences, creativity and a sense of imagination. Expressing emotions emerged as a common theme in the interviews in emotive statements for example “I like sitting down at that table (by the river) it makes me feel nice”, “That one is my favourite because mum is there”, “I really like the fern” and “Nature is all different, and the bridge is the most funniest part but not to me”. Furthermore, an ability to accept physical challenges appeared in examples from Jessica and Griffith and are presented in Figure 7.24 Physical challenges on Ben’s Walk. The researcher argues these statements articulate children’s apparent increasing resilience towards actions they perceive as difficult and their positive attitudes to overcome these.
Lily’s photo elicitation interview included details about her attachment with the Ben’s Walk environment. In the descriptions of her photographs she made connections to her background knowledge, experiences at Bundanon, knowledge of animals and information her grandmother taught her. Figure 7.25 Lily’s photo elicitation of Ben’s Walk provides details of her insights.

The photographs Henry took at Ben’s Walk are dominated by a small section of the river tributary. His photo elicitation focuses on the colour of the water, which indicates his knowledge of rain and flooding. It has been previously established that Henry connects to the environment though his experiences living on family farms, which are highly dependent on water. He also mentions the beach-like section of the tributary, connecting his knowledge to the recent visits to the beach at Bundanon and at Greenpatch. His interpretation is included as Figure 7.26 Henry’s photo elicitation of Ben’s Walk.
This one was one of my favourite trees because it had the big roots and they looked like tentacles on an octopus. Those ones were some brown leaves and I really liked them because they looked a little bit red but also brown. This is of bird sounds that I got.

Mangroves from the wet environment - there is a book about them in the library.

When we were down there, there was lots of wombat holes and and when you see a wombat hole it sort of looks very funny because they are big and the wombat holes are dark inside but sometimes, like when we went to Bundanon you could see through them, but I also like these mossy rocks.

My grandmother taught me wattle means the change of seasons. I have a postage stamp with it on, in my collection.

This is my favourite photo because some, like down, I think it's there that you can, there's some sand and lots of water and it looks like a beach and you don't really get the sand on a river when you're there. It changed colour because when we had lots of rain, the rain hit the dirt and the dirt and water turned into mud and the mud flowed into the water and then it all started to turn brown.
7.8 Landscapes - Introduction to discussion.

The findings in this chapter represent a continuation of the construction of knowledge surrounding the emergent themes of curriculum and engagement, wellbeing and making connections. The PBOL pedagogy was refined throughout the term and this insured an increasingly sharpened focus for the analysis of data.

7.9 Landscapes - Curriculum and engagement.

Curriculum and engagement continued to be a recurring theme within the research data. The emergent themes of behaviours for learning, transfer of learning and curriculum outcomes, continued from the A Journey in Place in and Water unit. The children’s routines by the second term of outdoor learning had become autonomous and included using sticks in learning, recording in their Nature Journal and playing 1, 2, 3 Where are you? In effect, this enabled the children to have a greater focus on curriculum learning throughout this term. Additionally, due to the deepening progression in children’s interpretation of PBOL new themes became apparent during the Landscapes unit. The newly emerged sub themes discussed in this chapter are taking risks in learning, and focus on learning intention.

7.9.1 Behaviours for learning.

Significant developments in listening skills, meant the students completed tasks in the Landscapes unit with increasing accuracy. Such as the example provided in The Patterns and Sounds session, where Henry’s Go Pro footage contained a constant dialogue reflecting the activity completed was in alignment with the set task. Children were attentive as teachers gave instructions, as they realised the importance the stimulus discussions had, to the activities that would follow. Correspondingly, O’Brien and Murray (2006) discovered children’s improved ability to listen was a result understanding the relevance of the instructions. A poignant example of comprehending instructions in the case study was during the Andy Goldsworthy session, when children conscientiously engaged with the stimulus discussion and then replicated the desired ephemeral art methods in their designs.
Slade et al. (2013) recognise motivation for learning outdoors requires children to be involved, concentrating, persistent with activities and enjoying what they set out to do. General increases in motivation for learning outdoors occurred in the Landscapes unit. The children were intrinsically driven to record discoveries on scavenger hunts and were inquisitive when examining environmental features on bushwalks. Throughout the unit, I witnessed that children were increasingly focused when completing written work outdoors. At Ben’s Walk I witnessed the entire class stop, without instruction, to make observational notes in their Nature Journal. The class was using their experiences to inform their writing, a finding Tanzer (2011) also recorded in her place-based learning research. The class was becoming increasingly committed to completing set activities by consistently employing positive behaviours for learning.

Children who found applying positive behaviours for learning difficult in the classroom were increasingly settled and on-task in the outdoors. It has been argued that outdoor environments have the potential to enhance motivation and behaviours that encourage learning (Dillon et al., 2005; Hartmeyer & Mygind, 2015; Hornstra et al., 2015; Knight, 2009). Furthermore, Slade et al. (2013) realised similar findings where children with minimal motivation indoors, achieved measurable improvements in time on-task outdoors. Supporting this notion was Jordan’s ability to complete his Andy Goldsworthy artwork, which reflected his increased motivation for learning while outdoors. In comparison, when indoors he lacked motivation to complete set tasks, be they art or otherwise. Correspondingly, Griffith’s GoPro footage at the Botanic Gardens shows him choosing to complete written work, an observable difference to the classroom avoidance tactics he applied during formal writing tasks. In general the children studied in this case study were engaged within outdoor learning activities.

However, contrary to the positive engagement findings there were some children who did not exhibit responsibility for their own learning. Outdoor learning observations of Taj, indicate he had a low level of motivation to complete tasks and experienced difficulty self-regulating his behaviours. He was missing from the outdoor area for 10 minutes during the Andy Goldsworthy art making unbeknown to Annie. Taj regularly did not finish assigned activities, meaning academic outcomes
were also not being achieved. In addition, he often received formal behaviour reports in the classroom for non-completion of written work or on the playground for being out of bounds during breaks. The breakdown of Taj’s notified incidents is presented in Table 5.5 Behaviour Incidents, where he is reported to have accumulated 28 challenging behaviour episodes across the year. This figure represents a significant amount more than any other child in the class. Taj did not receive any behaviour notifications during the outdoor learning sessions, where he managed to remain undetected when he did not complete set tasks or follow routines.

The relaxed boundaries of the outdoors lead to a more flexible learning environment, where children do have the ability to wander out of the set area. Therefore, it can be argued that teachers lose an element of control monitoring the boundaries of outdoor learning areas. Supervision of children is a core duty of teachers, some teachers may use the lack of closed boundaries and areas of supervision as a reason they would not implement outdoor learning. However, Taj and his episode of leaving the space was atypical to the rest of the class who, for the majority were consistently focused on the specified learning intention of outdoor sessions.

7.9.2 Focus on learning intention.

Children’s aptitude to focus on the specified learning intention of activities emerged throughout the Landscapes unit. Dillon et al. (2005) espouse “Engagement is often considered to be a person’s intrinsic interest in a domain of cognitive activities” (p. 93). It is proposed the children in the case study were increasingly interested in their learning environments commitment to the specified curriculum learning escalated. Examples include the ability of the class to thoroughly engage in making maps of the area at Greenpatch Beach and the high percentage of wombat photographs taken at Bundanon. As such, in this research the steady academic growth of the children was a product of their concentration on specific learning intentions within the outdoors environment observed in manipulative, oral and written components.

The use of topic specific oral language was constant in the exchanges between the children and their friends. Slade et al. (2013) propose children’s “more sophisticated uses of written and oral language and communication is prompted by their visual and
sensory experiences” (p. 67). In the case study children consistently focused their conversations on the surrounding environment such as Mario’s group at Booderee. GoPro footage revealed individuals’ self-talk was also focused on the specified learning intent, such as Henry’s chatter during Session 8 surrounding patterns, colours, shapes and textures in the environment. These examples are typical of the engagement on specified learning intentions throughout the term. There were however, individuals and groups who did not engage with the specified learning intention. Examples are the group playing in the sand at Greenpatch Beach who did not make a map and Taj’s group during the Andy Goldsworthy art making who were out of the outdoor learning space.

While at Bundanon, Mario was not focused on the specified learning intention. Instead, he played and described an imaginary computer game with his peers for a large component of the day. However, once at the river digging for water the set activity interested him and on return to school he connected digging for water to scientific knowledge. Mario provides an example of a child who, when interested in the learning intention, gains focus. This is heightened for him when scientific content is involved. Rios & Brewer (2014) recognise the distinct advantages the outdoors has for promoting engagement in scientific content. As the children were increasingly interested in their learning the prevalence of taking risks within a variety of areas emerged.

7.9.3 Taking risks in learning.

A willingness of the children in the case study to engage in risk taking within their learning was consistently recorded in this term’s data. Knight (2009) suggests that as children take risks and gain confidence in the outdoors, their learning increases. Among the many examples in the case study are during Henry’s GoPro footage when exploring patterns in the playground which reveals him attempting to write previously unknown words, without fear of spelling them incorrectly. Similarly, at the Botanic Gardens Mario’s group attempted to read complex new words on the plant identification markers. The teachers’ perception is that the children revealed their self-confidence to engage in this new learning.
Furthermore, O’Brien and Murray (2006) argue self-confidence comes from children having the “Freedom, time and space to learn, grow and demonstrate their independence” (p. 25). The independence apparent in learning tasks was a turning point for the children in the case study. For example, children had the confidence to complete the compass activity at Ben’s Walk, map-making at Greenpatch Beach and triptych artworks in their own unique style. Additionally as time progressed, they began to transfer this knowledge to the classroom more readily.

7.9.4. Transfer of learning.

The Landscapes unit was planned to encourage a transfer of learning between indoor and outdoor environments. Immersive outdoor experiences afforded children direct contact with local environments and provided a stimulus for formal writing lessons. Hartmeyer and Mygind (2015) established that after children had been involved in outdoor udeskole sessions, greater engagement occurred during aligned indoor work. An example from the case study was when the children transferred the Booderee National Park experience to a written text. The flow between indoor and outdoor environments was seamless and it was effectually difficult to divide the work between indoor and outdoor components. As Beames et al. (2012) promote, it was the environment and not the curriculum that altered as all activities completed, concentrated on the same curriculum outcomes.

7.9.5 Curriculum outcomes.

The academic outcomes for the Landscapes unit derived from Human Society and Its Environment (HSIE), Visual Arts and English and are presented in Table 7.8 Landscapes curriculum outcomes. The outcomes were integrated to create the immersive learning activities the children experienced indoors and outdoors.
Table 7.8 Landscapes curriculum outcomes.

<table>
<thead>
<tr>
<th>Subject</th>
<th>Curriculum Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>English</strong></td>
<td></td>
</tr>
<tr>
<td>EN1.2A</td>
<td>Plans, composes and reviews a small range of simple texts for a variety of purposes on familiar topics for known readers and viewers.</td>
</tr>
<tr>
<td>EN1.5A</td>
<td>Uses a variety if strategies, including knowledge of sight words and letter-sound correspondence, to spell unfamiliar words.</td>
</tr>
<tr>
<td>EN1.9B</td>
<td>Uses basic grammatical features, punctuation and vocabulary appropriate to the type of text when responding to and composing texts.</td>
</tr>
<tr>
<td>EN1.11D</td>
<td>Responds to and composes a range of texts about familiar aspects of the world and their own experiences. (BOSTES, 2012b)</td>
</tr>
<tr>
<td><strong>HSIE</strong></td>
<td></td>
</tr>
<tr>
<td>ENS1.5</td>
<td>Compares and contrasts natural and built features in their local area and the ways in which people interact with these features. (Board of Studies, 1998a)</td>
</tr>
<tr>
<td><strong>Visual Arts</strong></td>
<td></td>
</tr>
<tr>
<td>VAS1.1</td>
<td>Makes artworks in a particular way about experiences of real and imaginary things.</td>
</tr>
<tr>
<td>VAS1.2</td>
<td>Uses the forms to make artworks according to varying requirements. (Board of Studies, 2001)</td>
</tr>
</tbody>
</table>

**English**

Children, throughout the Landscapes unit, were consistently motivated to write about their immersive outdoor experiences. During PBOL sessions they independently engaged in writing tasks to record their observations. Compared to indoors, individuals were generally more willing to take risks in their spelling when outdoors. The experimental and informal tasks of outdoor learning transferred to more formal indoor written tasks.

Writing samples based on the Booderee National Park venture, provide data regarding the effective transfer of learning between outdoor experiences to formal written work. Throughout the representative samples provided previously in this chapter, there is evidence of topic vocabulary transferring into classroom activities. Children recalled labelled plants in the Botanic Gardens to include in their texts, such as the gum tree, paper bark, bottlebrush, egg and bacon and wool tree. The use of general nouns became common indoors, including beach, jungle, waterfalls and moss.
floors. Specific proper nouns also became part of children’s vocabulary, for example Booderee, Greenpatch and Australia. Additionally, the work samples depict the vast difference in writing ability across the class. Findings based on assessment criteria suggest that in order to complement outdoor experiences there is a need for indoor lessons to focus on: spelling strategies to enable children to correctly spell new words, explicit writing formats so children can construct texts using desired focus and structures and planning outlines to organise individuals’ experiences into a cohesive text.

Findings from the Landscapes unit suggest that implementing formal lessons inside the classroom based on outdoor activities enabled the highest possible achievement of English academic outcomes. This was especially the case when outcomes were integrated with HSIE content.

**HSIE**

Essentially the HSIE Landscapes unit involved completing immersive geographical activities in local landscapes. Dolan (2015) maintains learning in the outdoors is a fundamental aspect of learning in geography. Results indicate large segments of the outcome ENS1.5 can be covered in an outdoors environment. Table 7.9 HSIE curriculum indicators, provides details of how the outcome was achieved in an outdoors environment.

It is argued that HSIE curriculum in the Landscapes unit was covered effectively as children:

- Used geographical terms in an informal way as they conversed during the activities.
- Referred to maps for planning before outings to Ben’s Walk, town and Booderee National Park.
- Followed symbols and tracks on maps to navigate the Botanic Gardens.
- Made recordings when using compasses at Ben’s Walk.
- Shared, in photo elicitation sessions, emotions about places visited, for example, excitement, connection, apprehension, love and care.
- Constructed 3D models and maps to represent the local area.
• Identified features of wet, dry, natural and built features in their maps.
• Articulated individual interpretations of environments such as Lily’s photo elicitation of Ben’s Walk.
• Transferred indoor lessons to the outdoors to promote learning growth including Phoebe’s map at Greenpatch, which was a mirror of the map in the text *Are We There Yet?* (Lester, 2004).

Table 7.9 HSIE curriculum indicators.

<table>
<thead>
<tr>
<th>ENS1.5 Indicators</th>
<th>Covered in Session</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Session 8</td>
</tr>
<tr>
<td>Examines the differences between natural and built features and sites.</td>
<td></td>
</tr>
<tr>
<td>Identifies similarities and differences between natural features and sites in their local area and those in other areas.</td>
<td>✓</td>
</tr>
<tr>
<td>Uses a range of geographical terms to describe location and features, e.g. east, west.</td>
<td></td>
</tr>
<tr>
<td>Uses geographical tools to locate and investigate places, e.g. maps, globes, atlases.</td>
<td></td>
</tr>
<tr>
<td>Examines the values that people place on natural and built features and places.</td>
<td></td>
</tr>
<tr>
<td>Associates geographical terms for places and features with visual images.</td>
<td></td>
</tr>
<tr>
<td>Makes and interprets 3D models of features and places in their local area.</td>
<td></td>
</tr>
<tr>
<td>Constructs pictorial maps and uses these maps to locate real features.</td>
<td></td>
</tr>
<tr>
<td>Expresses feelings for particular environments and why they have these feelings.</td>
<td></td>
</tr>
<tr>
<td>Demonstrates an awareness that the features and places which are a part of their local area exist within a broader context, e.g. within a town/city, country.</td>
<td></td>
</tr>
</tbody>
</table>
Although HSIE assessments in the Landscapes unit were generally subjective, the immense quantity of data collected provides clear proof of the high level of learning growth children acquired. The time allocated to completing HSIE outcomes was supported by the implementation of integrated learning across subject areas.

*Integrated learning*

The Landscapes unit integrated English, HSIE and Visual Arts outcomes. Consequently, an integrated assessment was deemed the most suitable to measure outcome attainment. The integrated trypitch assessment was utilised as an insight into each individual’s knowledge about wet, dry, natural and built environments. Using natural materials allowed children to be imaginative with the form their work took; an opportunity which does not present itself to this degree in the classroom where more structured resources are typically employed.

The Visual Arts outcomes were successfully achieved as the children made artworks about real places. Analysis of the oral interpretation transcripts indicated children developed an increased range of vocabulary to describe chosen landscapes. Standout examples were: words utilised that were specific to built and natural features, and the use of proper nouns to specifically name the places the children had visited. Adjectives were used to describe features of the environments more fully. When analyzing the whole classes’ formal English assessment documentation of vocabulary development in this activity, the level achieved was well above benchmark. The ability of the children to compare and contrast environments, as stipulated by the HSIE outcomes was based on their personal experiences of places in PBOL.

The relevance of PBOL to the outcomes of the Personal Development, Health and Physical Education Syllabus (Board of Studies, 1999b) was initially noted in Chapter 6.10.4. Developments in the children’s gross motor skills, ability to work in groups and interpersonal skills during the Landscapes unit ensured the continued nurturing of the children’s physical and mental wellbeing.
7.10 Landscapes – Wellbeing.

The Landscapes unit provided increasing depth of understanding to the area of wellbeing. A continuation of the pivotal themes of positive relationships, resilience, risky play and self-regulation was reflected in the data collected. Significantly this term, the children’s developing confidence became apparent as the class became more familiar with the outdoors environments visited and as was the continued formation of strong positive relationships with their peers.

7.10.1 Positive relationships.

Throughout the Landscapes unit, the class increasingly participated in conversations with their friends at the same time as they engaged in on-task behaviour. A salient example was during the Andy Goldsworthy activity when children chose locations to work independently, but stayed near their peers so they could talk about and share their resources. Previous research (Hartmeyer & Mygind, 2015; Kennedy, 2001; Murray & O’Brien, 2005) acknowledges in the outdoors children talk to each other more thoroughly than in the indoor classroom. For example: use a greater depth of language skills and an increased range of vocabulary. The analysis of the case study data reveals PBOL can provide children with the opportunity to practise their developing vocabulary in context and develop communication skills with their peers.

During the Landscapes unit, it became apparent the class were turning to their peers instead of adults for support, such as when they navigated difficult terrain in the Ben’s Walk ventures. Additionally, as children turned to each other for assistance, their care for each other increased and new friendships began to emerge. Children were observed playing with others to whom they had provided assistance. Quay, Dickinson and Nettleton (2002) found the outdoor environment can stimulate students to be more caring towards each other and Mygind (2007) argued time spent in udeskole significantly contributed to the establishment of new playmates. These positive aspects of relationship development were also reflected in the case study, where children were observed enjoying the experiences of PBOL with new friends.
Throughout the term a sense of enjoyment being experienced by the children is recorded in my observational notes and is visible in the GoPro footage. When at Greenpatch Beach, Griffith provided a salient example of a child confidently enjoying his outdoor learning experiences. He was confident completing the tasks saying, “I am a really good builder” and “I feel good-very good. It is raining. We are near the water. We are at Booderee National Park”. Corresponding findings of fun, enjoyment and confidence have been reported in other outdoor programs (Hartmeyer & Mygind, 2015; Murray & O’Brien, 2005; Tanzer, 2011). In his research Kopelke (2012) recognised there were links between “fun, mastery and control, confidence, and satisfaction” (p. 179). Within the outdoor learning program it can be deduced that when children felt able to complete the task it promoted a more enjoyable experience. The students were comfortable in their surrounds and able to overcome potentially challenging situations, the teachers argued this was due to their apparent increased resilience.

7.10.2 Resilience, risky play and self-regulation.

Significant growth regarding perceived resilience occurred in the children throughout the Landscapes unit. The class developed skills to cope in adverse situations, which the NSW Department of Education and Communities (2015) recommend is an important aspect of developing resilience strategies. Annie prepared the class with realistic expectations and attributed children an element of control for how to deal with potentially uncomfortable situations. Examples include experiencing extended periods of rain at Greenpatch Beach and having to do a ‘bush wee’. The NSW Department of Education and Communities (2015) recognise “When individuals are empowered to have control over lived experiences, they build their own resilience” (p. 9). In the case study, children were in charge of certain aspects of the sessions such as, checking the weather the day before, pre-planning sites where people may need to do a ‘bush wee’, and ensuring they packed and carried all possessions required.

Furthermore, contributing to the resilience I witnessed, was the children’s increasing willingness to engage in physically challenging behaviours. In their photo elicitations, children mentioned steps they had tripped over on Ben’s Walk as a
favourite section of the bushwalk. Individuals exhibited developing self-regulation to undertake calculated risks for example walking on uneven terrain, water play at Bundanon and climbing trees in playground sessions. Murray and O’Brien (2005) suggest children actually enjoy taking risks when they are confident in their ability. Additionally, it is argued (Knight, 2009) that children learn to assess and take manageable risks when provided the opportunity in challenging environments. As the confidence to take risks in children progressed, they accessed more challenging aspects of the environments in PBOL sessions.

Previous research has argued that, children develop confidence to take risks when supported by adults (Knight, 2009; Knight, 2011; Murray & O’Brien, 2005; O’Brien & Murray, 2006; Slade et al., 2013). Jessica provides a paramount narrative detailing the incremental development of risk in a situation supported by adults. Gradually, over the three sessions at Ben’s Walk, the adult support to cross the bridge was reduced, until she could walk over the bridge independently. Jessica’s progression crossing the bridge showed evidence of her increasing ability to utilise her developing resilience to cope with more challenging situations. Due to the past experiences she had crossing the bridge she knew that it was achievable. Revisiting the area numerous times encouraged her to make the connection it was a safe activity.

7.11 Landscapes - Making connections.

The data collected during the Landscapes unit reflected the children’s background knowledge and past experiences. Throughout the off-site ventures, the children became increasingly attached to the local environments. Making a connection to animals in the environment began to emerge as a minor theme in the data collected at Bundanon and Ben’s Walk.

7.11.1 Background knowledge and past experiences.

The importance children assigned to past experiences with their families resounded through the data this term. Experiences such as camping, fishing or swimming were regularly spoken of in semi-formal interviews. Mannion et al. (2006) acknowledge,
“Family contexts appeared to catalyse some of the richest forms of learning about, in and for the environment” (p. 3). In the case study, children often included their parents, grandparents or other relatives in recounts of their past experiences. Examples include Mario’s group connecting the Tea Tree to tea his nanny made, Griffith bushwalking with his pa and Lily connecting the wattle at Ben’s Walk with stories her grandmother had told her. Stories told within families were also a significant way in which children connected to past experiences.

A salient moment connecting PBOL to past experiences involved Issac at the stage in the program when the class was reading the story Are We There Yet? (Lester, 2004). When the children were encouraged to bring in books about Australian landscapes to share with the class, Issac chose to bring in his family’s own photograph version of My Family’s Are We There Yet? which detailed a camping trip they took around Australia. He confidently recounted his journey around Australia to the class, describing landscapes and specific memories. The ease with which Issac shared his story with the class supports the research of Mannion et al. (2006), which derives, “family-led experience comes through as a strong dimension both in terms of the number of stories about these experiences and in terms of the value young people associated with them” (p. 52). The experiences Issac had with his family connected him to many environments around Australia that he was able to proficiently compare and contrast to the PBOL sites.

7.11.2 Environmental connections.

The attachments children made to local environments during the Landscapes unit were considerable. Throughout the term, the class spent extensive time off-site in immersive experiences. Three days, from 9 am – 1pm, were spent at Ben’s Walk and a full day each at Bundanon and Booderee National Park. A non-researched session also occurred where the children visited the town centre. The sustained engagement and repetitive visits enticed a deeper bond and attachment to local places. In conjunction with this finding is the research of Richardson, Sheffield, Harvey & Petronzi (2015) who speculate a positive correlation between children’s connection to nature and days spent outdoors “suggesting that the more time spent in nature is associated with child’s connection to nature” (p. 7). Additionally, Beames et al.
argue children knowing places, through a sustained engagement with the landscape itself, is the starting point for most meaningful learning.

Sustained engagement in the Ben’s Walk environment enticed individual connections to that landscape. Jessica, Griffith and Henry all included personalised attachments to Ben’s Walk in their photo elicitation interviews. Lily demonstrated a deeper understanding of Ben’s Walk and could articulate her understanding of the area in great detail, incorporating scientific knowledge, comparing this to other local landscapes and relating to her past experiences. These connections to place were expressed in the children’s construction and written tasks.

Accordingly, the Booderee National Park information report writing and map-making learning sequence indicated children acquired individual knowledge, based on their experiences in places. Children articulated their comparative knowledge gained of the off-site environments in the triptych artwork and associated interpretations. Correspondingly, findings by Rios and Brewer (2014) postulate “By establishing a connection with the outdoor world, children can learn more about their natural surroundings. This link is possible through repeated exposure to natural schoolyard settings from a nearby field, forest, stream, or garden” (p. 238). When analysing the work samples across the term, in conjunction with HSIE curriculum indicators, it became apparent that the children had learnt a great deal about their local environments through PBOL.

While children increasingly linked outdoor learning landscapes to others in their lived experiences, Mario provides an atypical example of connection to place. He connects the computer game “Minecraft” to his outdoor learning experiences. On multiple occasions he participated in imaginary computer games during sessions. Additionally, Mario made links between the landscape at Ben’s Walk and the animated ones in computer games. In the data his perceptions about reality and computer worlds appear blurred. The connections he was making to the environment and animals around him were based on the imaginary computer world, where he spent considerable time out of school hours.
7.11.3 Connecting to animals.

Outdoor learning is recognised as a stimulus for children to learn about and connect with animals (Dillon et al., 2005; Rios & Brewer, 2014). In the Landscapes data the minor theme of connecting to animals emerged, specific examples being children mentioning animals in their Booderee information report texts and in Ben’s Walk photo elicitation interviews. Furthermore, connecting to wombats at Bundanon was a strong focus for the class, which was evident in the photographs they took that day. Specifically, Lily articulated this interest in wombats during her interview and through her focus on the *Diary of a Wombat* (French, 2002) texts. Additionally, Mario referred to his knowledge of landscapes in town and at Bundanon to decipher where wombats would want to live, providing data to support that children were increasingly aware of which environments were ideal for animals to live in. Chawla (2015) recognises it is important for children to understand the place of animals in biodiversity. The exposure to landscapes in PBOL allowed the class to deepen their understanding of the animals in their local context.

7.12 Conclusion.

The Landscapes unit provided the children with opportunities to explore the nearby world and further consolidate the important learning gains evident in the emergent themes of curriculum and engagement, wellbeing and making connections. The reflections of children indicate their learning in this unit was directly responsive to place and specific to the location it formed. The class was focused on localised learning about landscapes in great depth, which resounded throughout the collected data.

The transfer of learning within this unit between the indoor and outdoor environment was strong. Academic work samples were enriched as a result of the outdoor stimulus tasks. Achievement of learning outcomes across the English and HSIE subjects was comprehensive. The children’s learning reflected the highly individualised nature of outdoor learning and each child continually produced unique work samples.
The HSIE knowledge developed in outdoor learning was ably presented in both oral and written format. Curriculum outcomes and indicators during this unit were based on the knowledge of environments, they do not stipulate how to implement them and teachers could choose to do this completely within the classroom. Significantly, the immersive experiences of the term allowed the children to acquire in depth knowledge regarding local landscapes. The children were immersed in the environments they were learning directly about. Adapting the immersive strategies to curriculum that was not directly linked to learning about the environment they are in is a challenge and further development for PBOL.

Quality and length of formal written work was consistently high when measured against academic outcomes. While the information presented in English writing samples depicts knowledge growth of local environments, what is lacking is the children’s ability to form this into structured pieces of writing. Therefore, results from the English curriculum suggest to further develop PBOL in regards to including distinct explicit lessons within the classroom to teach writing structures.

The wellbeing of children continued to be enhanced by completing outdoor learning. Interpersonal relationships within the class broadened to include a network of friendships that reached out to all children in the class. Children were effectively friends with the whole class. They developed many bonds in addition to the few close friendships already established. Within formal learning the children continually made connections to the environment, past experiences and animals. With the students’ developing confidence these were increasingly articulated within the data collected this term.

The immense progress witnessed amongst the children during the Landscapes unit allowed increasingly flexible planning, complex tasks and independence for the children to be programmed into the final term of outdoor learning. Schoolyard Safari was developed after a review of the data collected during this term and represents a shift towards children’s greater responsibility, self-directed tasks, playful learning and ensuring a richness of direct experiences to ensure maximum transfer to formal written work.
Chapter 8: Results – Schoolyard Safari.

8.1 Introduction.
8.2 Session 15 - Yarning Stick Revisited.
8.3 Session 16 - Leaf Men.
8.4 Session 17 - Observing Worms and planting vegetables.
8.5 Session 18 - Finding Small Creatures.
8.6 Session 19 - Ant Trails.
8.7 Session 20 - Ben’s Walk Worm Adventure.
8.8 Session 21 - Worm Town Walk.
8.9 Session 22 - What is Important in Our School?
8.10 Session 23 - Bundanon Frogs and Fun.
8.11 Concluding Outdoor Learning Interviews.
8.12 Schoolyard Safari - Introduction to discussion in emergent themes.
8.13 Schoolyard Safari - Curriculum and engagement.

8.13.1 Behaviours for learning.
8.13.2 Playful learning.
8.13.3 Curriculum outcomes.
8.14 Schoolyard Safari - Wellbeing.

8.14.2 Independence and responsibility.
8.14.4 Parental involvement.

8.15 Schoolyard Safari - Making connections.

8.15.1 Environmental Connection.
8.15.2 Connection to animals.
8.15.3 Care for the environment.

8.16 Conclusion.

8.1 Introduction.

During the final term of the school year, as the seasons turned from spring into summer, the Schoolyard Safari unit was completed. The integrated Science and English unit involved six school playground sessions, a town centre walk and one visit each to Ben’s Walk and Bundanon. In accordance with the developments of PBOL in the previous term, immersive experiences were the basis of formal learning tasks.

Children were introduced to the concept of small creatures during playful learning. Subsequent curriculum occurred inside and outside the classroom with a focus on building knowledge regarding ants, worms and frogs. The off-site visits to Ben’s Walk and Bundanon were less structured than previous visits to allow children time to explore the now familiar environments with a greater degree of freedom and independence.

8.2 Session 15 - Yarning Stick Revisited.

The yarning stick activity, from Session 2, was repeated to enable comparisons to be drawn regarding children’s growth in understanding of the school grounds. Once again the children had to attach natural materials, representative of important places for them, to a stick. Children were provided with the same resources, timeframe of one hour and instructions, as they were during the initial yarning stick activity.
approximately 6 months earlier. However, this time groups completed the activity independently without the need for adult support. The focus children were asked to verbally interpret their individual yarning stick.

**Findings**

During the Yarning Stick Revisited session, I completed general observations and recorded field notes. I noted that small groups were able to confidently access areas of interest to them in the school grounds. Independently the children attached natural materials to their yarning sticks. Focus children could articulate their yarning stick’s story and the transcripts of these are included as Figure 8.1 Yarning sticks revisited. The children mentioned locations in the school grounds that they knew in greater detail than in the initial session. The activity confirmed that the children had formed attachments to the school playground and an increased awareness of both its contents and layout.

*Figure 8.1 Yarning sticks revisited.*

<table>
<thead>
<tr>
<th>Julia</th>
<th>Bruce</th>
<th>Lily</th>
</tr>
</thead>
<tbody>
<tr>
<td>J - I got this little thing. It looks like a dress and a flower.</td>
<td>B - This is from the front. It fell off a tree. This from the front. It fell off a tree. I got maybe fell of a horse. I got this one. It is from the front. It was on the ground.</td>
<td>L - I found this on the ground just here and it reminds me of the black cockatoo path. This I found out the front and it smells like a farm, the farm I go to every Christmas. This reminds me of the bush when I sometimes go up there. And this reminds me of the thing-that bit of-that are in the trees.</td>
</tr>
<tr>
<td>A - Do you know any new places?</td>
<td>A - Are these different from the last time? Do you know different places?</td>
<td>A - Have you found new places in the school since last time we did this? Where?</td>
</tr>
<tr>
<td>J - I know this part you are not allowed to go. Over the hole in the fence.</td>
<td>B - Yes.</td>
<td>L - This time I know where everything is. Cause I have been here for a longer time.</td>
</tr>
</tbody>
</table>
8.3 Session 16 - Leaf Men.

In the playground, Annie read *The Leaf Men and the Brave Good Bugs* (Joyce, 1996). The text was used to scaffold imaginative stories in the outdoor and follow up classroom sessions. Small groups engaged in playful learning for one hour to construct story settings, create leaf men characters and devise adventures for them. Annie encouraged children to use adjectives when describing their story settings. Groups used iPads to film their imaginative leaf men stories as they played.

During follow up classroom sessions, groups utilised their iPad footage as a stimulus to assist them in making story maps on poster paper. Subsequent oral presentations gave the children an opportunity to share their narratives with the rest of the class.
The concluding activity of the learning sequence involved children publishing an individual leaf men story.

Findings

Informal play, fun and enjoyment are words recorded in my field notes to describe the children making their leaf men story settings and narratives. Groups of five or six children worked collaboratively for the duration of the activity, switching between making stories for the leaf men and more general play. Essentially, children were able to alternate between these activities and complete the specified learning intention of the session. In my observations, I recorded the children to be climbing trees and engaging in risky play. The ability of the children to engage in more challenging physical activities had significantly improved since the initial PBOL sessions. Images of this are depicted in the photographs Figure 8.2 Leaf men play.

Figure 8.2 Leaf men play.

When I reviewed the classes’ leaf man iPad footage, a range of storylines, character voices and sound effects emerged. Groups used aspects of the original text to create new imaginative plots. Connecting to the central storyline of one of the characters
being asleep was common in footage, for example, “I am having a wonderful sleep, let’s go to bed now and little leaf man is asleep in the morning”. Children transferred initial characters to their own stories such as the doodle bugs. Linkages to personal past experiences were visible in their play story creations and heard in all groups’ GoPro footage, for example in comments like, “the wobbly bridge, we go over the bridge, the square bridge”. This comment is referring to the Ben’s Walk wobbly bridge and the local Shoalhaven Bridge, visited in previous outdoor learning sessions.

In a representative sample of the classes’ transcribed iPad footage, presented as Table 8.1 Leaf men transcript, children prompt their peers to use adjectives and extend their descriptions. The group has adhered to the specific learning intention and supported their friends to enhance vocabulary development while they played.

Table 8.1 Leaf men transcript.

<table>
<thead>
<tr>
<th>Child A</th>
<th>Into the water he goes up up up up up up dah.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child A</td>
<td>I am about to go upstairs. Now slide down the stairs. Now slide down the path. Go to the toilet.</td>
</tr>
<tr>
<td>Child B</td>
<td>Do some adjectives.</td>
</tr>
<tr>
<td>Child A</td>
<td>He is sitting on the lounge. I know where the television can be.</td>
</tr>
<tr>
<td>Child B</td>
<td>Go find the swimming pool and do a back flip.</td>
</tr>
<tr>
<td>Child A</td>
<td>Wwwwwooo. I am dead.</td>
</tr>
<tr>
<td>Child B</td>
<td>No do some adjectives.</td>
</tr>
<tr>
<td>Child A</td>
<td>This is our water park and people are sliding down it. This is the water hole. Any butterfly goes down the slide wooooo wee. I will do a back flip. Ahhh h. That’s four slides.</td>
</tr>
<tr>
<td>Child A</td>
<td>Let’s go to bed now.</td>
</tr>
</tbody>
</table>

During the leaf men scaffolded play, children developed storylines and relevant vocabulary. They effectively transferred the playful learning experience to follow up activities in classroom lessons. Groups watched their iPad footage when back indoors to stimulate ideas for story maps. Upon completion of the activity the children confidently presented their story maps to the class. An overview of the outdoor to indoor flow of activities is presented in Figure 8.3 Leaf man story development. Photographs depict refined behaviours for learning and represent
marked improvements in responsibility, self-regulation and independence when compared to those observed at the beginning of the year.

*Figure 8.3 Leaf man story development.*

After completing the outdoor playful learning experience, group story maps and oral presentations, the children independently wrote their own story. Four children’s iPad footage was summarised and is presented next to the same child’s final transcribed writing sample. *Figure 8.4 Leaf men stories from play to written work,* presents this progression of ideas and completed tasks. These data allow the flow of ideas from the outdoor to indoor environment to be monitored. The spelling and grammar
presented in the written work section remains unaltered from the children’s work. There were activities in the middle of the playful learning to written work sequence, which may have altered ideas, yet it is provided as an example of how ideas grow and change through a learning sequence from play to formal work. The examples depict varying degrees of a transfer of story line ideas between individual children’s experiences.

Figure 8.4 Leaf men stories from play to written work.

Bruce leads the viewer through the story setting his group created, mainly the football place and four bridges they made. His group reenact the leaf men playing football and going into their house. They show the water slide, waterslide, climbing wall and another wobbly bridge.

My leaf man had an adventure. First I played football. Next I went to the pool. Then I running that I went to the climbing way. Then I went across the wobbly bridge up the climbing way. Then I went to bed. Then I woke up. Finally for the rest of the day I watched T.V. . The next day I played football and I went to the pool I had a swim then I made a cake to eat.

Lily initially goes on a trip, finding doodlebugs along a path with a leaf girl called Rachel. There is a bridge and a house along her way. Her group later names one of the leaf men Fin, they continue along a long path to find snakes and doodlebugs.

Little Fin
On Thursday Fin, a leaf girl, wanted to go into the dark woods with her doodlebug. But then the doodlebug got spooked and ran off the path and into the muddy river. Now we were stuck!!! Then the doodlebug whistled and all the doodlebugs came marching in a line. But they can’t think of a way to get them out. Suddenly the doodlebugs leader said “We can make a doodlebug chain and pull them out”. So they made a doodlebug chain and pulled them out, and went back home.
8.4 Session 17 - Observing Worms and Planting Vegetables.

The focus text being covered in class at the time of the Observing Worms and Planting Vegetables session was *Worms and the Mechanics of Organics* (Bollard, 2011). In alignment with the information presented in this text, children observed worms in the school vegetable garden and worm farms. Discussions were held with the class regarding why worms are useful in garden beds. Afterwards the children worked for an hour in the garden planting seedlings.

Findings

While planting seedlings, Annie and I easily identified which children had vegetable gardens at home. Salient leadership examples were Bruce and Lily who I photographed confidently helping their peers as seen in Figure 8.5 Planting vegetables. I overheard both of these children explaining to friends about the procedures of planting and growing. They were confident sharing their previous
experiences and background knowledge with the class. Which in turn, enhanced the learning opportunities for others. Their peers showed respect whilst listening to their instructions and gladly accepted their assistance.

*Figure 8.5 Planting vegetables.*

8.5 Session 18 - Finding Small Creatures.

The class used paper maps of the school playground to mark places they predicted worms, ants or other insects would live. In conjunction with their predictions, they explored locations around the playground to discover small creatures. The class worked independently for one hour in their small groups of three or four children. Groups laid hoops to define areas and then used their hands to look for small creatures in the soil, grass or leaf litter. The children recorded their discoveries in their Nature Journals.

**Findings**

Throughout the session, I observed the class actively searching for small animals. Groups were spread out across the oval to enable them access a variety of areas relating to their initial predictions. Independently groups moved themselves when they had finished exploring a space to a new location, where they repeated the activity. The ability of the children to self-regulate their behaviours and be responsible for their own learning away from the teacher, signified improvement in their learning habits. Additionally, finding small creatures activity engaged individuals who generally found focus difficult. Specifically, I noticed Taj engrossed in the task as he worked in the middle of the class with a group of children. Figure 8.6 depicts Taj finding small creatures, lifting up a log to enable him to dig holes.
8.6 Session 19 - Ant Trails.

Similar to the previous session, children accessed the playground for one hour and worked in small groups of three or four. The focus of the session was to search for ants. Sugar, sports hoops and magnified glasses were provided for the students to use in their explorations. Small groups chose areas of the playground, laid their hoops down and began the search for ants. After they had placed their hoops, children scattered a little sugar in the area to see if additional ants appeared or if the original ants changed their movement patterns.

Findings

During the session I observed the class exhibiting similar behaviours to the previous session. Again the class were engaged in the set learning intention, responsible for their own learning and self-regulating their behaviours. Children were independently able to complete the task without direct teacher supervision. Throughout the hour, Julia and Jessica searched for ants with their friends. Figure 8.7 Jessica and Julia ant trails, represents the high degree of focus on the specified learning intention exhibited by their group.
Julia and Jessica’s semi-formal interview transcripts offer insights into their connection to animals. Noticeable in both interviews is their mentioning of caring for and empathy towards, insects. Transcripts are provided in Table 8.2 Making ant trail interviews.

**Table 8.2 Making ant trail interviews.**

<table>
<thead>
<tr>
<th><strong>Julia</strong></th>
<th><strong>Jessica</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>A - Do you think we could learn about that bug in the classroom?</td>
<td>A - What did you look at today?</td>
</tr>
<tr>
<td>J - Yup. So I can learn about more and write about it.</td>
<td>J - Ants and different foods that they might eat.</td>
</tr>
<tr>
<td>A - Could you find it in the classroom?</td>
<td>A - What did you observe?</td>
</tr>
<tr>
<td>J - No. If we brang it in then we would know what it does.</td>
<td>J - I watched them quietly and I stepped away when they tried to go around or under me.</td>
</tr>
<tr>
<td>J - We looked at insects like this insect I found. It is called Chloe.</td>
<td>J - That you have to be careful when ants are around. You might not see and step on them.</td>
</tr>
<tr>
<td>A - What did you touch or feel.</td>
<td>‘Cause the ants and insects eat different things like moisture from other creatures.</td>
</tr>
<tr>
<td>J - I touched this.</td>
<td>A - Can you tell me about your relationship with the earth?</td>
</tr>
<tr>
<td>J - (Made me feel) fun. Cause it is nice little creature.</td>
<td>J - That the ants are precious and they need space and all the creatures.</td>
</tr>
<tr>
<td>A - Can you think about anything we did today to care for the environment?</td>
<td>J - Yes. Making sure you don’t tread on things.</td>
</tr>
</tbody>
</table>

Throughout the corresponding Schoolyard Safari indoor lesson sequence of activities during the weeks of Sessions 17 – 19, I completed observations of classroom behaviours and took corresponding photographs. Motivation for learning, when tasks were linked to outdoor learning activities was noted. Children were engaged with increasing interest and dedication towards all manner of activities. Quality work samples emerged depicting a clear understanding of the curriculum content. A selection of observational photographs I took throughout this time is included as Figure 8.8 Schoolyard Safari behaviours for learning.
8.7 Session 20 - Ben’s Walk Worm Adventure.

The Ben’s Walk Worm Adventure was a 9 am – 1pm session, where the class walked down the bush track, crossed the suspension bridge and went onto the Depot Farm area. Once there, small groups made homes for Squiggle the worm, a character from the narrative *Squiggles’ Big Day* (Littlejohns & Pearson, 2009), which was the focus text being read at the time. When children finished their constructions they pretended to be real estate agents with the job of selling the home to others. By doing this they had to think of all the features an imaginary worm would want in their dream house.
and find the vocabulary to describe it. At the completion of the activity the class returned to school along the bush track.

Findings

Throughout the session my focus for observations was on the children’s behaviours for learning in an off-site environment. Photographs I took portray observations of the teachers’ perceived significant improvements in the classes’ self-regulation, responsibility, resilience, gross motor skills and independence when in an outdoors environment. Photographs and interpretations of examples are included as Figure 8.9 Ben’s Walk final observations.

*Figure 8.9 Ben’s Walk final observations.*

- Children walk in lines when needed autonomously.
- Children walk over uneven ground and down larger rocks independently.
- Children walk, run and enjoy rocking the suspension bridge as they cross it.
Parental involvement was again noticeable and recorded in my field notes, with six parents and six younger siblings participating in the session. Griffith’s mother had given birth to his sister and left hospital only days before the venture yet she, Griffith’s father and newborn sister came along. When I spoke to them about their participation, his mother said, “We have been at most sessions and we are not stopping now”. Bruce’s mother also attended the session, with three of his younger sisters, Joanna 2 months, Melanie 3 years and Kristy 5 years. Bruce had been keen for his mother to assist in the classroom or outdoor learning all year. However,
bringing three younger siblings would have been difficult in most situations. In my observational notes I wrote about how happy, caring and responsible Bruce was with his siblings as they joined in the activities. During an interview with me he said, “I had to help Melanie not to sit on or wreck things. She is littler and cuter than Kristy”. When I spoke to his mother she could not believe how proud he (Bruce) was to have his sisters there. She also spoke of her ability to attend due to the easy access to the site and the fact her younger children could participate. Photographs of this event are included as Figure 8.10 Bruce’s family at Ben’s Walk.

Figure 8.10 Bruce’s family at Ben’s Walk.

8.8 Session 21 - Worm Town Walk.

Squiggles’ Big Day (Littlejohn & Pearson, 2009) was again used as the stimulus text for this session. The learning intention of the Worm Town Walk was to replicate an adventure similar to Squiggle’s. The class jointly planned their own “Worms’ Big Day” using a map of central Nowra. To plan the walk, they decided which places in an urban environment a worm might like to visit. With a shortlist of venues, the class left the school gates with a rough plan of stopping at the Post Office, fancy dress shop, a cafe and Library. The walk began at 9am and places visited emerged out of the children’s interest on the day and included the original shortlist as well as the
movies and art gallery. At the conclusion of the walk the class returned to school at 11:30am.

Findings

During the Worm Town Walk, I made general observations of the children which focused on off-site learning behaviours, specifically those pertinent to an urban environment. The children leading the class lines stopped to wait for adult direction at roads, traffic lights and driveways. They demonstrated responsibility by knowing where it was safe to walk and sites of potential traffic. A high degree of self-regulation was apparent as the class stayed walking on the designated paths, without distraction or wandering off to explore other sections of the area. Photographs I took depict Annie at the back of the group not needing to intervene with behavioural prompts, as the children walk orderly through town in two lines. A selection of these images is provided as Figure 8.11 Walking in town.

*Figure 8.11 Walking in town.*

Listening to the children in iPad footage they took, there was a focused constant chatter as friends discussed activities ‘the worm’ could do and places it could visit. The class had a clear understanding of the learning intention of the session and their directed conversations are evidence of this awareness. Examples of what I heard are presented in Figure 8.12 Events in town.

As the class walked past the Nowra Art Gallery, children spotted ephemeral art in the window and “*Andy Goldsworthy*” was called out in excited unison. Subsequently, the gallery staff invited them inside to look at the displays, one of which was an environmental art installation constructed out of recycled materials, screens showing a rubbish dump and sculptures made out of old televisions.
Annie and I observed the class as they explored the gallery. The children were totally captivated by the exhibition, avidly interacting with the artworks, asking their friends questions about installations and attempting to read the interpretive notes. While in the gallery there was a high degree of excitement, yet the children managed to self-regulate their behaviours within the confines of the setting. For example, they walked and used an appropriate noise level in their conversations. The class connected many of the environmentally themed artworks in the displays to their previous experiences during PBOL, in particular, the ephemeral artworks.

*Figure 8.12 Events in town.*

- **Cafe**
  "What would a worm eat?" "I had a milkshake there."

- **Post Office**
  "Maybe the worm could post himself to all the places he wanted to go in an envelope?"

- **Local Member of Parliments office**
  "What would a worm want to ask the government for?" "More dirt and gardens."

- **Movie theatre**
  "What movie could a worm see?" "I would want to watch that one."

- **Fancy dress shop**
  "How would you make a worm costume?" "A worm could wear a tiara."
Julia and Lily recorded what they saw on the town walk with an iPad, taking 106 photographs between them of aspects they felt were important. Built features accounted for the focus of 46 photographs and included intricate details of town artefacts including letterboxes, signs or fences. People comprise 25 of the photographs, for example their peers, Annie and I. Of note were the 35 photographs representing small sections of nature such as the flower boxes, little pieces of gardens, single flowers and trees. The photographs reflect the specific details of the town centre that the girls had focused on, rather than more generalised images. These images indicate they were looking at details within the known town centre environment. Examples of the photographs they took are included as Figure 8.13 Julia and Lily’s town photographs.

**Figure 8.13 Julia and Lily’s town photographs.**

After the session I conducted semi-formal interviews with six of the focus children. They told me about what they had learnt on the town walk and included details of the “subject” they thought might have been covered during the experience. Their responses indicate their interest in the art gallery rubbish installation, worms and aspects of the urban environment. Children had focused on the content of their learning rather than the identification of its potential “subject”. The transcripts are included in Figure 8.14 Town semi-formal interviews.
Following on from the walk children, wrote an imaginary journey for a worm as a stand-alone task. This activity was completed without teacher input, as would regularly occur for a writing sequence. Generally, children would be supported in the construction of word banks for use in their texts or completing class joint constructions of a sample text. As such, the background knowledge for the task was only the town walk itself. When compared to general writing samples the children’s Worm Town Walk writing displayed increased length and complexity. Recounting of events, imagination and a willingness to experiment with vocabulary are seen throughout the samples. Examples of work are seen as Table 8.3 Town walk writing samples. Sample 1 finishes mid sentence, no more work was completed due to time constraints.
Table 8.3 Town walk writing samples.

<table>
<thead>
<tr>
<th>Sample 1</th>
<th>Sample 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>[Image]</td>
<td>[Image]</td>
</tr>
</tbody>
</table>

**Sample 1**

Yesterday I went to the library. We saw a lot of books and read some. Then we went to a cafe and had some food. After that, we went to the art gallery.

**Sample 3**

Yesterday we went to the park. We saw many birds and flowers. We also went to the art gallery. We saw a lot of interesting things.

**Sample 2**

We went to the town last week. We saw many people and buildings. We also ate some delicious food.

**Sample 4**

There was a big park near our house. We often went there to relax. We also had some nice experiences there.
8.9 Session 22 - What is Important in Our School?

What is important in our school? was a three hour session organised to conclude the school playground outdoor learning component. The session was specifically designed to gather research data, rather than as a curriculum based task. Three evaluative research activities were completed with the aim of discovering what connections the children had developed to their school playground as a consequence of PBOL.

The whole class divided into small groups and made maps of the school in a similar activity to the map-making of Session 4: The Expedition. Data gathered from these maps were to ascertain the progression and development of knowledge about areas of the school from the beginning of the program. Focus children were given iPads to take 15 photographs of what they deemed to be significant places in the school grounds. In subsequent semi-formal interviews, children spoke to me about why they had chosen the locations in their images. To conclude the session, on a large communal piece of paper, the focus children drew the areas or features they regarded as most important to them at school.

Findings

In my general observation I recorded that the groups decided to make their maps in playground locations where they felt a particularly connection, for example, the Black Cockatoo outdoor learning space, vegetable garden or alongside the library. As parents were in attendance during this session, supervising groups in the various areas of the school was practical. The maps created utilised a range of mediums and styles, which is evident in photographs taken of the children’s creations. Examples include building in trees, etching in dirt or combining natural materials and recycled rubbish. Children constructed accurate features of the school in their maps. Most groups chose to label items on their maps by writing on and attaching separate small pieces of paper. Findings indicate that significant growth in the awareness of locations within the school was apparent when compared to the similar map-making session from earlier in the program. At this stage, children had an in-depth knowledge of locations and depicted the whole playground rather than just small
sections as had been the case previously. Figure 8.15 Final school maps provide examples of the broad range of maps constructed.

*Figure 8.15 Final school maps.*

Six focus children took a total of 81 photographs of the school grounds, which equated to 37 built features and 44 natural features. The most common built aspect photographed was their Kindergarten classrooms, followed by a variety of images that indicated ‘respect’, for example the Church, flagpoles and plaques. Natural features photographed were of smaller sized items, such as a single tree, lomanadra grass, a flower, lettuce, chickens and an egg in the chicken coop. The photographs indicated a focus on specific components within the school grounds, rather than generalised spaces. Images taken were from all areas of the site, indicating children had developed a thorough knowledge of the entire school grounds and an ability to access many sections of it independently. This is a marked difference from early in the program when the class could not navigate their own way around the playground to make their initial yarning sticks in Session 2.

When I asked the focus children about their favourite photographs, their interpretations indicated a shift towards articulating the natural features. Key words in each of these children’s transcripts are provided in Figure 8.16 Final photo elicitation. The key words indicate a broad range of locations in the school playground and the children’s extensive knowledge of the grounds.
During the drawing activity, children worked as they conversed with me about what they perceived to be the most important parts of the school. Children focused on the small specific features of the school in their drawings, for example, the mint garden, compost heaps, the library and radishes. Children highlighted places outside of their own classroom as the most important and memorable for them. When the drawings were tallied they totaled: nature (15), people (5), buildings (4), compost bins/worm farms (4) and iPads (1). The images detailed a range of spaces and the focus on the outdoors indicate children’s deep attachments with the school playground, especially to the areas where outdoor learning directly took place over the three terms.

8.10 Session 23 - Bundanon Frogs and Fun.

The final outdoor learning session at Bundanon was a relaxed end of school year celebration. It was the last outdoor learning session for the class and occurred in the second last week of the term. Children followed the now familiar pattern of
Bundanon days by completing introductory activities near the homestead, walking to the riverbank beach, completing a manipulative activity there, and finally returning to the homestead for lunch and concluding tasks. There was a high level of support with six educators and four parents present.

The focus of this session was in relation to frogs. Annie verbally told the Indigenous story of *Tiddalick* and children looked at tadpoles in the creek alongside the homestead. After walking through the paddocks, groups engaged in playful learning to construct frog ponds at the riverbank beach. Upon return to the homestead area, the class played and completed frog artworks with Elizabeth.

**Findings**

Throughout the day, I completed general observations and took photographs to record the advancement of the children’s positive behaviours for learning at Bundanon. The class eagerly participated in all of the set tasks throughout the day, especially as they made frog ponds at the riverbank. Observations at the riverside beach highlight an apparent growth in self-care, self-regulation, confidence and engagement in risky play. Children responsibly played in the water to the specified depth and experienced great freedom as they completed constructions with their friends. A summary of what I witnessed and the photographs I took are provided as Figure 8.17 Final Bundanon observations.
Back at school I asked the class to reflect upon the three Bundanon sessions. Children wrote reflections regarding memorable experiences at the site. Six of the focus children’s responses are presented in Table 8.4 Bundanon reflections. These samples indicate that they enjoyed constructing at the riverbank, details of the Bundanon property and their connection to the animals at the site.
Table 8.4 Bundanon reflections.

<table>
<thead>
<tr>
<th>Bruce</th>
<th>Julia</th>
</tr>
</thead>
<tbody>
<tr>
<td>At Bundanon we went to the beach. I made a seaman. We heard frogs. Elizabeth went frog dipping. We went to the beach. We got in the water. Annie read Tidalick. It was cool. I learnt there are lots of types of frogs.</td>
<td>At Bundanon I learnt it used to be a farm because there was a cow. My favourite day there was the first day. My favourite art is making a landscape on the little island.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Henry</th>
<th>Lily</th>
</tr>
</thead>
<tbody>
<tr>
<td>At Bundanon I learnt that some frogs croak very loudly when it rains. My favourite day there was yesterday because we got to go down to the river and take off our shoes and put our feet in the water.</td>
<td>At Bundanon I learnt about frogs and how they come out at night. I also learnt that the old homestead used to be a farm. My favourite day there was yesterday the 8th because we got to put our feet in the water and make a frog pond. The homestead was owned by Arthur Boyd and he painted some famous painting. Jessica, Bruce and I found a seed.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Jessica</th>
<th>Taj</th>
</tr>
</thead>
<tbody>
<tr>
<td>At Bundanon I learnt that some frogs hibernate. My favourite day was probably our second turn because of all the flowers. At Bundanon I learnt that Bundanon used to be a farm. My favourite day was probably Monday because when we built our environmental buildings because ours was so far out. I learnt that frogs are animals.</td>
<td>I loved when we take my shoes off.</td>
</tr>
</tbody>
</table>

The Bundanon reflective writing samples from the 24 children present in the class were analysed. Tally points were attributed for phrases indicating similar topics. Emergent themes were: people, narratives of Bundanon, activities, animals, landscapes and respect for the environment. Results indicate the children had a connection to animals at Bundanon, an awareness of the landscape, had experienced enjoyment in the construction activities and putting their feet in the water. Significantly the children noted their relationships with others were important to them. These data are presented in Table 8.5 What did I learn at Bundanon?
Table 8.5 What did I learn at Bundanon?

<table>
<thead>
<tr>
<th>Theme</th>
<th>Response</th>
<th>Tally</th>
</tr>
</thead>
<tbody>
<tr>
<td>People</td>
<td>Friends</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Teachers</td>
<td>3</td>
</tr>
<tr>
<td>Narratives of Bundanon</td>
<td>Farm and Boyd history</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Stories</td>
<td>3</td>
</tr>
<tr>
<td>Activity</td>
<td>Making constructions</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>Putting feet in the water</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>Walking up the hill</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Fun</td>
<td>15</td>
</tr>
<tr>
<td>Animals</td>
<td>Animals (wombats and frogs)</td>
<td>23</td>
</tr>
<tr>
<td>Landscapes</td>
<td>Landscapes</td>
<td>10</td>
</tr>
<tr>
<td>Respect</td>
<td>Respect and care for the environment</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Total: 112</td>
<td></td>
</tr>
</tbody>
</table>

8.11 Concluding Outdoor Learning Interviews.

During the final week of school, after the completion of the outdoor learning program, focus children completed a photo elicitation using images I had taken of the local area. Based on the Connection to Nature Index (CNI) of Cheng and Monroe (2010) this aimed to discover previously unknown knowledge regarding elements of the program. When I analysed the interview transcripts in conjunction with the emergent themes, I found the children provided evidence of their increased knowledge regarding Curriculum and Engagement and Making Connections. The most salient responses pertaining to these themes and relevant to the forthcoming discussion are included in Table 8.6 CNI Photo elicitations.
Table 8.6 CNI Photo elicitation.

<table>
<thead>
<tr>
<th><strong>Curriculum and Engagement</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Griffith</strong> - Being outside makes me really happy. I like playing with the plants a lot and the plants like playing with me.</td>
</tr>
<tr>
<td><strong>Jessica</strong> - Being outside makes me happy. We collect stuff. We feel stuff. We build stuff. We feel plants we have never felt before. It makes me happy because the plants are all around me.</td>
</tr>
<tr>
<td><strong>Lily</strong> - Being outdoors makes me happy. When you are outside in nature you can build things. For me my favourite art and craft is when we go outside and make things. Because in the classroom you can get paper and things but in the outdoors nothing is really the same. There are no leaves that are actually the same so you can make up different ones that look pretty and you can mix some of the colours. When you are outside you can build things you cannot make out of normal blank paper. I would rather be in nature as there are lots of sounds there. The sounds calm you down a little bit and it feels really nice inside (you).</td>
</tr>
<tr>
<td><strong>Mario</strong> - Being outside makes me happy. I like feeling what animals feel like, like frogs. Making inventions for them leaving them food, making new houses for them. Lots of things.</td>
</tr>
<tr>
<td><strong>Taj</strong> - Yes. I like playing around. I like it inside. You have to do work. Outside you have to do work sometimes, writing down whatever.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Making Connections</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Background knowledge and past experiences</strong></td>
</tr>
<tr>
<td><strong>Jessica</strong> - I spend time with my family outside sometimes. We exercise every day.</td>
</tr>
<tr>
<td><strong>Environmental connection</strong></td>
</tr>
<tr>
<td><strong>Mario</strong> - The only thing that makes me happy when I am inside is video games. My actions make the world a different place. My future is made of video games.</td>
</tr>
<tr>
<td><strong>Connection to animals</strong></td>
</tr>
<tr>
<td><strong>Griffith</strong> - I enjoy touching snails and slugs. I just like touching things in nature.</td>
</tr>
<tr>
<td><strong>Julia</strong> - I like touching animals cause they sometimes fell sticky and slimy and they come in water.</td>
</tr>
<tr>
<td><strong>Mario</strong> - I enjoy touching animals and wildlife. Some of them crawl, some slither, some jump and some of them run. I enjoy how snails feel. They make snail trails. I like how they are slimy.</td>
</tr>
<tr>
<td><strong>Care for the environment</strong></td>
</tr>
<tr>
<td><strong>Griffith</strong> - Picking up rubbish is good for the environment. If they get all the dirt in their lungs they could die with the animals.</td>
</tr>
<tr>
<td><strong>Jessica</strong> - Taking care of animals to me is good for the environment, as the animals are getting healthy.</td>
</tr>
<tr>
<td><strong>Mario</strong> - Taking care of animals is important to me. Chickens are always pecking the ground. Eating what I give them.</td>
</tr>
</tbody>
</table>
8.12 Schoolyard Safari - Introduction to discussion in emergent themes.

Research conducted in the Schoolyard Safari unit was completed with the dual focus of evaluating program activities and assessing curriculum components. The findings assess the academic student progress and can be read in conjunction with the Term 4 standardised testing results presented in Chapter 5. Final analysis of these data depicts incremental increases in the children’s knowledge and understanding over the duration of the PBOL program. The emergent themes of curriculum and engagement, wellbeing and making connections continue to organise the data.

8.13 Schoolyard Safari - Curriculum and engagement.

Centric in the data collected during Schoolyard Safari, was the improvement in the classes’ behaviours for learning. Playful learning was consolidated as an important aspect of knowledge construction for the children’s curriculum attainment, especially in its use as a stimulus for writing. The completion of curriculum outcomes remained a salient aspect of this term’s data collection across the English and Science subject areas.

8.13.1 Behaviours for learning.

Positive behaviours for learning in the outdoors are well supported in related literature (Dillon et al., 2005; Hartmeyer & Mygind, 2015; Hornstra et al., 2015; Knight, 2009, O’Brien & Murray, 2006; Slade et al., 2013). Observations this term provided data relating to the classes prodigious outdoor behaviours for learning. This was prominent from the first session of the term in the Yarning Stick Revisited, where children accessed areas of the school independently. These positive behaviours for learning continued throughout the final term of outdoor learning.

Across all outdoor settings, children presented with increased and consistent focus, heightened listening skills and a willingness to follow instructions. When indoor work was completed, regarding the outdoor learning topics, I observed a higher degree of engagement and interest in the tasks. The self-regulation exhibited in outdoor sessions allowed greater freedom for the children when completing activities
such as safely exploring slightly deeper water at Bundanon. Additionally, the class exhibited increased responsibility for their own learning, consequently maximising enjoyment and flexibility within outdoor sessions. This was exemplified during the Worm Town Walk where only rough plans were made before leaving the school grounds, yet the attainment of maximum curriculum learning outcomes resulted. They maintained focus on the task at hand, which ensured these playful experiences were advantageous for overall learning gain.

8.13.2 Playful learning.

The Leaf Men session demonstrated the effectiveness of playful learning. The class acted out their own narratives in teacher scaffolded play. As they played, children developed language to transfer to their writing. Hopwood-Stephens (2013) acknowledges outdoor play allows children to learn socially as they talk, share ideas and articulate their thoughts. The development of oral language in play has been recognised as an important stage of vocabulary acquisition (Kennedy, 2001). Vocabulary acquired in the playful learning experience transferred and appeared in children’s subsequent written tasks.

Additionally, the play in the Leaf Men sequence was used to create imaginative storylines. Slade et al. (2013) report an increased depth of creativity as a result of play, where children are able to represent their experiences, taking on character roles and acting out scenarios. It is acknowledged by Hopwood-Stephens (2013) that “when a child sits down to write a story they need not only to master the motor skills required to produce legible letters, but also activate a memorised bank of story structures” (p. 7). The Leaf Men session provided children with the opportunity to develop possible scenarios for their stories including the characters, aspects of setting, and basic storylines. Analysis of the children’s playful learning iPad footage in conjunction with their writing task, depicts elements of a transfer of content. However, the findings are not strong and it cannot be ascertained the play experience was directly used in their writing. The data does suggest the motivation for children to write was greatly increased as a result of their playful outdoor experiences.
Hopwood-Stephens (2013) recognises a child’s motivation to write is a result of their confidence in their ideas. Additionally, the Leaf Men writing samples highlighted the outdoor environment as stimulating children’s interest, creativity and motivation which in turn, transferred to the classroom. However, it is also recognised that for each child to reach their full potential for mandated curriculum, there must be elements of explicit spelling and sentence structure instruction. Annie and I used the compulsory English writing continuum indicators to assess the children’s Leaf Men writing (State of New South Wales Department of Education and Communities, 2012). It was found that Levi and Bruce were marginally attaining the minimum benchmark level for the end of Year One. They were achieving and working towards the indicators presented in Table 8.7 Levi and Bruce English Assessment Indicators. Lily and Amber were achieving above the minimum benchmark for the end of Year One. They were achieving and working towards the indicators presented in Table 8.8 Lily and Amber English Assessment Indicators.

Table 8.7 Levi and Bruce English Assessment Indicators.

<table>
<thead>
<tr>
<th>Levi and Bruce English Assessment Indicators</th>
<th>Achieved Indicators</th>
<th>Indicators Working Towards</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Writing one or two main ideas</td>
<td>• Using full stops and capital letters in the correct places</td>
</tr>
<tr>
<td></td>
<td>• Using words or groups of words that the teacher has modelled to write their own sentences</td>
<td>• Joining two simple sentences with a conjunction</td>
</tr>
<tr>
<td></td>
<td>• Beginning to use adjectives to describe nouns to make their writing more interesting</td>
<td>• Using adjectives throughout their writing</td>
</tr>
<tr>
<td></td>
<td>• Trying to spell high frequency words</td>
<td></td>
</tr>
</tbody>
</table>

Table 8.8 Lily and Amber English Assessment Indicators.

<table>
<thead>
<tr>
<th>Lily and Amber English Assessment Indicators</th>
<th>Achieved Indicators</th>
<th>Indicators Working Towards</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Writing 5 or more sentences about a topic of interest. Including using complex sentences.</td>
<td>• Using paragraphs in their writing</td>
</tr>
<tr>
<td></td>
<td>• Writes ideas in order so it makes sense</td>
<td>• Using contractions and capital letters for proper nouns</td>
</tr>
<tr>
<td></td>
<td>• Uses adjectives to describe nouns to make writing more interesting</td>
<td>• Spelling unfamiliar words with complex spelling patterns and question marks in their own writing</td>
</tr>
<tr>
<td></td>
<td>• Writes longer texts on a single theme drawing on background knowledge and topic words</td>
<td></td>
</tr>
</tbody>
</table>
It is argued, that as a result of playful learning, curriculum outcomes were achieved to a higher standard for related writing tasks, than in general writing samples. Further information is presented in section 8.13.3 Curriculum outcomes.

8.13.3 Curriculum outcomes.

Planned curriculum outcomes in the Schoolyard Safari unit were from Science and English. Table 8.9 Schoolyard Safari Curriculum Outcomes details the focus outcomes for the term.

*Table 8.9 Schoolyard Safari Curriculum Outcomes.*

<table>
<thead>
<tr>
<th>Subject</th>
<th>Curriculum Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>EN1.1A Communicates through speaking, listening, reading, writing viewing and responding.</td>
</tr>
<tr>
<td></td>
<td>EN1.2A Plans, composes and reviews a small range of simple texts for a variety of purposes on familiar topics for known readers and viewers.</td>
</tr>
<tr>
<td></td>
<td>EN1.9B Uses basic grammatical features, punctuation and vocabulary appropriate to the type of text when responding to and composing texts.</td>
</tr>
<tr>
<td></td>
<td>EN1.10C Thinks imaginatively and creatively about familiar topics, ideas and texts when responding to and composing texts.</td>
</tr>
<tr>
<td></td>
<td>(BOSTES, 2012b)</td>
</tr>
<tr>
<td>Science and Technology</td>
<td>ST1.4WS Investigates questions and predicts by collecting and recording data, sharing and reflecting on their experiences and comparing what they and others know.</td>
</tr>
<tr>
<td></td>
<td>ST1.11LW Describes ways that different places in the environment provide for the needs of living things.</td>
</tr>
<tr>
<td></td>
<td>(BOSTES, 2012d)</td>
</tr>
</tbody>
</table>

*English*

English outcomes were covered by harnessing play and direct experiences as a stimulus for writing. Throughout the data it was witnessed that verbal communication addressed in outcome EN1.1A was enhanced. Utilising play and subsequent group tasks in the Stick Men writing activities was an effective means to work towards the EN12.A and EN1.10C outcomes. While a growth in vocabulary is
evident in these samples, to enhance the grammatical and punctuation aspects of this outcome, explicit writing lessons are recommended. Consequently, outcome EN1.9B was not effectively achieved in work samples that used the outdoors as the main planning tool.

*Science*

The Science outcomes, ST1.4WS and ST1.11LW, were achieved in outdoor learning. Higher levels of engagement were witnessed in the fieldwork components. However, no formal assessments were completed on the direct Science learning occurring in the outdoors during the Schoolyard Safari unit. Hence the degree or effectiveness of the outcome attainment for PBOL cannot be formally reported.

*Integrated learning*

The Board of Studies (1999b) Personal Development, Health and Physical Education Syllabus Interpersonal Relationships strand continued to be an incidental learning area within PBOL. While not assessed in the curriculum the overall advantages to children’s wellbeing were once again recognised during this term.

8.14 Schoolyard Safari - Wellbeing.

The final term of the outdoor learning program consolidated previous understandings of wellbeing. Collected data strengthened the fundamental emergent themes of positive relationships, independence and responsibility, resilience, risky play and self-regulation, and parental involvement. The positive relationships developed in outdoor learning continued to be one of the strongest emergent themes. As previously mentioned this saliently contributed to general wellbeing outcomes and those stipulated in the Board of Studies (1999b) Personal Development, Health and Physical Education Syllabus Interpersonal Relationships strand.


Social wellbeing includes the extent to which we experience positive relationships with others (NSW Department of Communities, 2015). Positive relationships demonstrated in the final term of Year 1 were increasingly steadfast. At this stage,
the web of social interactions extended throughout the class. Children worked, played and helped anyone in the cohort during all manner of activities. They collaborated to effectively balance their own ideas with those of others. Similarly, Hartmeyer and Mygind (2015) found in udeskole children learnt to balance their own way of seeing things and created room for others to become involved. Cooperation of children during group work is also promoted based on the research of Forest Schools programs (Dillon, 2005 et al.; Knight, 2009; Slade et al., 2013). Regularly, I observed children in PBOL sessions cooperating with their classmates, such as in the Leaf Men play, while digging frog habitats in the sand at Bundanon and choosing a style to make their school map. The children in the case study supported each other constructively, enthusiastically and genuinely which the Wellbeing Framework of the NSW Department of Communities (2015) recognises as important when building positive relationships.

Additionally, outdoor learning created an environment where children were aware of others’ strengths, skills and competencies. Children began choosing to work with others who they knew would be able to help them find, design or manipulate materials in constructions. This was exemplified when Jessica chose to work with boys she knew could climb trees to get materials for their map. In their Bundanon reflections, children articulated that learning was something fun and completed with their friends. Hartmeyer and Mygind (2015) also found in udeskole the outdoors “created an opportunity for pupils to get to know each other better and to be aware of other pupils’ skills and competencies, which strengthened the social relations in the class” (p. 8). While collaborating in small group activities the case study children developed the confidence to articulate their ideas in a variety of activities.

Murray and O’Brien (2005) espouse when children’s confidence in a skill is present they are able to communicate proficiently and take on leadership roles amongst their peers. In PBOL, leadership qualities in children became pronounced when they were confident in their own ability. Bruce and Lily could confidently communicate ideas to their peers due to outdoor skills that they had learnt with their families. For example they both competently taught others how to plant seedlings. Outdoor learning promoted the opportunity for children to enact leadership skills that would not occur inside a general classroom.
Research has found leadership skills are developed in outdoor programs centred on play (Burriss & Burriss, 2011; Dillon et al., 2005; Knight, 2009; Murray & O’Brien, 2005; O’Brien & Murray, 2006). Furthermore, the data collected in qualitative observations of PBOL, asserts that leadership qualities can develop within outdoor curriculum based activities. Based on the small cohort and minimal data these findings are not strong. Further studies regarding leadership development in primary outdoors curriculum programs are needed to solidify these results.

8.14.2 Independence and responsibility.

Independence and responsibility continued to appear throughout the analysis of the qualitative data, in the form of teacher and researcher observations that were collected during the Schoolyard Safari unit. During off-site ventures my observations consolidated earlier findings, which represented the increasing responsibility of the class, for example in the Worm Town Walk. When Dillon et al. (2005) assessed outdoor learning they realised encouraging personal responsibility was intertwined with engendering confidence. Similarly, during the case study this term, children confidently organised themselves autonomously into lines for walking into and around town, transitioned between instruction and play routinely, written work was completed voluntarily and they showed an improved ability to complete self-care procedures such as putting their own shoes back on, after playing in the water. Dillon et al. (2005) espouse responsibility can be achieved by children: learning to have a go, building confidence, taking pride in what they have done and being able to organise themselves. Parallel to these findings are teachers’ perceptions that the children’s resilience had increased enabling them to surmount new challenges.


Resilience, risky play and self-regulation are widely reported as benefits of outdoor programs (Gill, 2007; Knight, 2009; Munoz, 2009; O’Brien & Murray, 2006; Play England, 2014). According to the teachers’ observations children’s apparent resilience continued to improve within the Schoolyard Safari unit. Contributing to this perceived growth in resilience was the children’s ability to take small risks in
their play. Their familiarity walking over uneven surfaces and crossing the Ben’s Walk Bridge enabled them to cope with the challenges. Children’s confidence in more risky situations meant they could engage safely, in more adventurous play experiences, such as entering the water at Bundanon. Compounding their ability to play safely was their improved ability to self-regulate to their personal comfort or skill level, for example, how to climb trees to a safe height. The children could also engage in a higher level of risky play due to the degree of parental involvement during PBOL sessions.

8.14.4 Parental involvement.

Parental involvement continued to remain high throughout the Schoolyard Safari PBOL sessions. Attending outdoor learning was possible for parents as the venues visited were easily accessible and practical for younger siblings to attend. For example Bruce’s family attended the Ben’s Walk session due to the access road and his younger siblings could participate in the activities. Forest School research (Murray & O’Brien, 2005; Slade et al., 2013) acknowledges there is a ‘ripple effect’ when families revisit outdoor sites when children’s experiences are positive. The ‘ripple effect’ was experienced during the case study year, for example children would recount going back to Ben’s Walk on weekends with their families. Dillon et al. (2005) state children often want to revisit places they have explored in outdoor learning, later with their families. A year after the conclusion of the outdoor learning program, I still often receive photographs of children visiting outdoor sites with their families along with reports of their after-school outdoor adventures. Supporting this finding are O’Brien and Murray (2006) who argue, “Owing to children’s enthusiasm for Forest School, they bring the experience ‘home’. This can result in changes to out-of-school routines and behaviour, with parents taking their children outdoors more” (p. 25). Children in the case study were making connections to places visited in PBOL which impacted on their out-of-school behaviours.

8.15 Schoolyard Safari - Making connections.

Data from the Schoolyard Safari unit provided further evidence to incorporate into the Making connections emergent theme. Children were able to more accurately
articulate connections to the environment and animals in their interpretations this term. Care for the environment was also increasingly prevalent in their responses where children related to local concerns as a result of their environmental connection.

8.15.1 Environmental connection.

The significant time spent in the school playground enabled the focus children to establish individual interpretations and understandings of place. Interactions with environments promote a construction of understanding (Dillon et al., 2005). Furthermore, Tanzer (2011) believes a sense of place is a connection established as a result of specific feelings, experiences and understanding. Through the interpretation of their yarning sticks in the final term of outdoor learning, it transpired the class had developed a deeper level of understanding regarding the school playground. This was as a result of their experiences over the three terms of the outdoor program. They used a variety of words to describe the environmental features such as the sticks, ground, flower, smooth, fern, hay, tree bark, squiggly things and fuzzy leaves. When analysing their interpretations a resonating theme of familiarity with their playground was prevalent. The familiarity was evidenced by their increased descriptions of location specific details.

When completing semi-formal interviews during the final term of outdoor learning, children spoke about specific, intricate details regarding the school grounds. When interpreting their yarning sticks children mentioned little known places in the playground for example, “this is a little gap you could stand in”, “over the hole in the fence” and “the bins in the vegetable gardens”. The drawings children made of areas of importance to them at school, were of small features such as mint, a chook egg, the compost bin, and a flagpole. Children were looking beyond general features to focus on small aspects of the environments.

Similar findings were collected during the Town Centre Worm Walk sequence, when photographs taken by Julia and Lily indicate their focus on details in the urban environment. They looked beyond simply recognising buildings to investigate their place more deeply by taking photographs of letterboxes, small flower plots and signs.
Learning experiences in the final term of outdoor learning was inspired by localised learning in the children’s community. Tanzer (2011) argues in place-based learning “Making a connection to place inspires relevant and meaningful learning experiences for students in their community” (p. 111). When I asked the focus children what they had learnt on the Worm Walk, actual place names were central to all responses. This was significant as naming specific locations inferred that children had gained a localised knowledge of the town where they lived and had been immersed during outdoor learning. This degree of understanding regarding the local context could not be gained from learning inside the classroom. Knowledge acquired in PBOL sessions was in conjunction with memories of family visits to the town centre. Chawla (2015) argues the most frequently reported factor with children connecting to place was being able to readily access them. In the case study, children connected to the built and natural features of local environments and began to comprehend the biodiversity of visited places.

8.15.2 Connection to animals.

Connection to animals remained a minor emergent theme in the Schoolyard Safari data. Analysis of the Bundanon end of year reflective writing pieces revealed, children mentioned animals as their most memorable learning at the site. In the end of year CNI photo elicitation interviews children mentioned they liked touching slimy things. While the connection to animals is a minor theme, it is significant as the children began to see the environment to include animals as part of the biodiversity. Additionally, the children made the connection that animals needed clean environments to live in and where they would be safe. Slade et al. (2013) discovered similar findings in Forest School where children became increasingly aware of how to ensure animals’ safety in local environments. Caring for animals was one aspect of caring for the environment which emerged this term.

8.15.3 Care for the environment.

Care for the environment became an increasingly predominant theme during the Schoolyard Safari unit. Richardson et al. (2015) found children who connected to nature were likely to engage in pro-environmental behaviors. Children by this stage
of the program had developed a deeper connection with place, hence it transpired they articulated a greater amount of information regarding caring for the environment. Higgins (2009) suggests that developing a connection with place “provides a start point for relationships (connections) with people within a community that allows further developmental outcomes, such as understanding the consequences of one’s actions and an ethic of citizenship and care” (p. 48).

Throughout discussions Annie and I had during the final term of outdoor learning, we consistently made reference to the seemingly intrinsic attraction the class had to environmental knowledge, such as, at the art gallery the class were interested in and highly engaged when exploring the recycling displays. At school, children would choose to read books about plants and animals in preference to other titles. The class was beginning to search for environmental understanding beyond the school playground and were developing a sense of caring for local environments.

Connection and place attachment has been found to promote a sense of care, environmental competence and in turn, inspires action (Chawla, 2015; Tanzer, 2011). In the end of year CNI photo elicitation interviews children mentioned localised environmental actions for example, picking up rubbish and looking after chickens. Both of these actions had strong correlations to the local school environment to which they had become deeply connected. Dillon et al. (2005) found children who engaged in outdoor learning began to make connections between their experiences, knowledge and values.

8.16 Conclusion.

PBOL had been refined by the conclusion of the outdoor learning case study. Immersive curriculum learning in the outdoors was a stimulus for the children to complete more formal indoor tasks to a greater depth than would generally occur. This was especially the case for the development of ideas for English writing tasks. The emphasis on play became more apparent as PBOL was refined, this was in part due to the heightened ability of the children to remain focused on directions. For example in the final term of outdoor learning children remained engaged on play tasks regarding The Leaf Man.
The experience of PBOL greatly impacted on children’s knowledge of the nearby environment. As children became more aware of their surrounds they looked beyond the superficial features of places to articulate a wealth of knowledge regarding their local natural environment and township area. Additionally, caring for the environment became salient in their interviews and work samples. Children could identify environmentally conscious actions to look after local natural areas and animals they had encountered in the outdoor learning sessions.

The positive impact of PBOL was evidently beyond academic and connection to place. Importantly, the wellbeing of the class was promoted through the completion of activities in the supported outdoor environment. By the completion of Term 4 the bonds the class had to each other were strong and there was a web of friendships crossing the class. The development of a range of social and group skills was enacted due to their increasing confidence in themselves and their relationships with their peers.

Chapters 6, 7 and 8 have provided an in depth analysis of the collected data. The contents are largely pragmatic and tell the story of the case study class. Read in conjunction with the school based quantitative data of Chapter 5 there are strong arguments pertaining to the implementation of outdoor learning. Chapter 9 draws this information together into a final discussion answering the research questions directly. Information regarding learning theories, and the weaknesses of the program and research, enable conclusions to be drawn regarding PBOL. The gaps realised by conducting this case study are highlighted, then the recommendations for future research and program development are outlined.
Chapter 9: Conclusion and Recommendations

9.1 Introduction.

9.2 What pedagogical approaches were effective in the programming and delivery of PBOL?

9.2.1 Constructivist learning theories.

9.2.2 Authentic learning.

9.2.3 Experiential education.

9.2.4 Place-based education.

9.2.5 Pedagogical limitations.

9.3 The impact of outdoor learning. What did the children learn in PBOL?

9.3.1 Curriculum and engagement.

9.3.2 Wellbeing.

9.3.3 Making connections.

9.4 What curriculum learning occurred in PBOL?

9.4.1 English.

9.4.2 Science.
9.4.3 Human Society and Its Environment/Geography.
9.4.4 Visual Arts.
9.4.5 Personal Development, Health and Physical Education.

9.5 Case study research limitations.

9.6 Recommendations for future practice, professional development and research.
9.6.1 Recommendations for further pedagogical developments.
9.6.2 Recommendations for further practice, policy and professional development.
9.6.3 Recommendations for further research.

9.7 Significance of the PBOL case study.

9.8 Reflections on and impact of the PBOL case study.

9.1 Introduction.

The concluding chapter revisits the overarching research question “How can place-based outdoor learning enrich children’s education in a primary school?” and the three research sub questions:

- Which pedagogical approaches are effective in place-based outdoor learning?
- What do children learn as a result of outdoor learning experiences?
- What curriculum can be developed in place-based outdoor learning?

This chapter addresses these research questions through the analysis of the constructivist curriculum framework enacted in place-based outdoor learning (PBOL). The three key themes of curriculum and engagement, wellbeing and making connections highlight the salient areas of impact for the children involved. An examination of the specific curriculum covered in the outdoors drives the future implementation of outdoor learning in Australian primary schools.

The collected academic results support the argument that outdoor learning positively impacts on children’s attainment of curriculum subjects, including: English, Science, Geography/Human Society and Its Environment (HSIE), Visual Arts and Personal Development, Health and Physical Education (PDHPE). Additionally, teacher
observations note while outdoors the children exhibited a perceived growth regarding their independence, responsibility, motivation and engagement with set tasks. Furthermore, children’s general wellbeing was advanced as a result of PBOL.

The class displayed increased ability to engage in positive relationships and utilise leadership skills. They were able to self-regulate their behaviours to stay on task and accomplish activities. Harnessing their newfound resiliency enabled individuals to overcome personal, physical and mental challenges. Consequently, children participated in increasingly risky play as they developed confidence in their own gross motor skills and became familiar with local environments. PBOL assisted the children’s ability to make linkages to background knowledge during learning tasks. The regular immersive ventures in known, authentic local environments stimulated a connection to place, enacted place-responsive experiences and an initial understanding of sustainability.

9.2 Which pedagogical approaches are effective in place-based outdoor learning?

The first research question, “Which pedagogical approaches are effective in place-based outdoor learning?” directly investigates the PBOL curriculum framework that was designed and implemented in this study. Analysis of this research question acknowledges the contributions social constructivism, authentic learning theory and experiential education, make to PBOL. Additionally, place-based pedagogy is examined with reference to the outdoor learning program planning and delivery.

9.2.1 Constructivist learning theories.

One of the major contributions of this study relating to constructivist learning theories is the evaluation of the pragmatic outdoor implementation and subsequent data collection. Constructivism and social constructivism are interrelated terms with varying emphasis regarding the construction of knowledge (Crotty, 2003; Leather, 2013; Quay, 2003). Both variants of these linked traditions had strong impacts on the development of PBOL.
According to constructivist traditions, individuals connect prior knowledge to their surrounding environment. Within the case study learning was established as a result of past experiences, surrounding phenomenon such as water, landscape features and Indigenous stories. This was exemplified during the “Water Audit” and “Revisiting Ben’s Walk” sessions when Henry interpreted water features and linked these to his knowledge of drought on family farms.

In alignment with constructivist pedagogy, Annie regularly encouraged the children to independently explore and discover new knowledge. An opportunity like this, does not present itself inside the classroom, where children are most often sitting in seats. Annie was able to scaffold experiences in PBOL by asking children pertinent questions and participating in exploratory talk during activities. For example, the children were challenged to observe and identify plants during bushwalks at Ben’s Walk and Booderee National Park. As the children became more confident in their own ability, Annie’s teaching role became less concerned with delivering instruction and increasingly focused on guiding children during activities. It has previously been established in research that constructivist theories promote the notion that teachers take on a variety of roles such as facilitator and co-explorer (Adams, 2006; Ari et al., 2016; Leather, 2013; Ultanir, 2012). Additionally, Adams (2006) proposes “The discursive nature of social constructivist learning environments emphasises the need for children to be given time to talk, with the teacher’s role that of listener and observer” (p. 249). Within the case study, children engaged in social conversations that were effectively learning.

Leather (2013) acknowledges in social constructivism “Language plays an important part in the social and intellectual development of children” (p. 3). A cornerstone finding of the study, suggests the social interactions in PBOL ensured the class engaged in dialogue about the places and activities they experienced. Analysis of the collected data highlights the open-ended, hands on, role-play and exploratory tasks, aided constructive communication. The language based social interactions built knowledge for children and this enabled vast developments in vocabulary expansion. Many of the social interactions occurred during the play experiences included in the outdoor sessions.
The value of play in constructing children’s learning had an unexpectedly large, yet advantageous impact on PBOL pedagogy development. Playful learning has previously been recognised as an effective learning tool that develops oral language and related understandings (Bruner, 1983; Kennedy, 2001; Leather, 2013; Lillard, 2013). Furthermore, Lillard (2013) espouses “playful learning spans both free play and guided play. Playful learning is child centered, constructivist, affectively positive, and hands-on” (p. 158). Building on this concept, Leather (2013) argues for a concept of scaffolded play, where brief instructions are provided to encourage directed playful learning. Employing the scaffold technique within the case study assured play had a curriculum focus. This occurred in a plethora of examples such as at Bundanon’s riverbank in the “Diary of a Wombat” session, during “The Great Expedition” group map-making activities, and in the role-play of the “Leaf Men” stories. Saliently, the playful learning within PBOL allowed children to engage with problem-solving skills.

Through the completion of a range of activities outdoor learning utilised problem-solving approaches. Adams (2006), Ari et al. (2016), Bruner, (1983) and Cakir (2008) promote constructivist pedagogies develop problem-solving skills. Within PBOL this was evident when children devised their own way to use natural materials in maps, worked out methods to traverse over difficult environmental terrains at Ben’s Walk and completed simple open-ended inquiry tasks. Importantly in the case study, children developed these skills in authentic and known contexts.

9.2.2 Authentic learning.

PBOL was highly effective for connecting the class to authentic environments, such as the residential area, town shopping precinct, parks and bush land. The academic curriculum being covered in outdoor sessions encompassed a variety of topics and academic outcomes due to the broad range of locations. During off-site ventures children actively constructed knowledge in localised contexts and were consistently engaged in the task at hand.

Embedding curriculum content within an authentic context has previously been recognised to enhance academic learning (Hornstra et al., 2015; Newmann &
Associates, 1996; Newmann et al., 1996). Saliently, authentic learning is also promoted in the *NSW Quality Teaching Framework* (QTF) (NSW Department of Education and Training, 2003). This document aims to support curriculum implementation in NSW schools by encouraging increased interest, motivation and engagement. In alignment with this document’s focus, the case study evidence promotes that children were highly motivated to complete authentic learning tasks during outdoor learning off-site sessions.

Newmann (1991) believes authentic learning involves a collaboration of ideas where children “take on new roles of seeking help from and giving help to one another as they learn” (p. 462). Within PBOL children continually worked together with their peers, in various roles and helped others achieve outcomes. This was exemplified during discussions between children regarding ways to build maps at Booderee National Park and when they assisted each other over difficult bushwalking terrain. The experiential nature of many of the PBOL tasks ensured children continually developed interpersonal skills.

### 9.2.3 Experiential education

Experiential education is a constructivist learning theory that enables children to pursue their own interests, engage in problem-solving tasks and implement practical skills. According to Quay (2003) learning through experience occurs both at the level of the individual and small group. Outdoor learning encouraged individual experiential experiences such as sensory activities during the “Exploring Ben’s Walk” sessions. Individual creativity was expressed in the Andy Goldsworthy art making of the “Patterns and Sounds” session.

Previous research has acknowledged that play and experiential learning are linked processes (Hunter & Walsh, 2014; Stephen et al., 2010). A salient example of this method is the “Bundanon Frogs and Fun” frog pond building, where children experimented with how to dig ponds. Science activities within the case study enabled children to effectively experiment with concepts by “manipulating objects and materials through purposeful play” (BOSTES, 2012d, p. 35). Significantly, experiential play in PBOL utilised higher order thinking skills such as comparing,
contrasting and processing information. These learning gains are central to the completion of Science outcomes (BOSTES, 2012d).

Experiential pedagogy was effectively implemented in construction building, where Annie was able to guide the activity to ensure it was child directed. This was exemplified when the class had to plan, reflect and refine their shelters in the “Ben’s Walk worm adventure” session. When the shelters fell down children discovered they should to change materials or devise support mechanisms to ensure success. Additionally, during the end of year large map constructions of the school grounds in the “What is important in our school?” session, ongoing reflection occurred as children evaluated and revised their designs. In this way an ongoing formation of new ideas occurred as part of the reflective learning process.

Further reflections occurred regularly in the children’s Nature Journal writing and during informal conversations with the teachers. However, these were overly simplified and rarely utilised to full potential. This is an identified pedagogical limitation, as also recognised by Blenkinsop et al. (2016), who in their research surrounding mainstream teachers, recognised the lack of professional development regarding reflection cycles of experiential learning.

9.2.4 Place-based pedagogy.

Place-based pedagogy contributes significant understandings regarding the first research question, which focuses on learning theory. Paramount to the design of PBOL was that children were able to regularly connect to places in their local area such as the town, parks and river. Revisiting these places enabled ongoing bonds to be established and an intricate knowledge of them to be formed. Similar findings have been reported by Hill and Brown (2014), Kellert, (2012) and Wattchow and Brown (2011). In this case study, attachments to place were articulated throughout the class’s semi-formal interviews, photographs, map-making activities and informal written work.

Photographs taken by the children of the town centre and school grounds depict the close attention to small details of places visited in this study. This finding developed
during the case study program, as children looked beyond generalised features to the intricate details of familiar environments. For example, from a generic photograph of a large landscape at Ben’s Walk to images of singular flowers or trees at the same location. The focus on intricate details depicted in the photographs captured by the children has not previously been reported and is therefore unique to this study.

Due to the children’s detailed knowledge of place, the class became proficient at planning off-site ventures. They knew how to organise routes, areas to shelter in case of inclement or hot weather, where difficult terrain would be encountered, the location of possible risks and where to find natural materials for creations they built. A dominant finding was that PBOL sessions became increasingly flexible as the children responded to familiar places with growing comfort. This is an important fact, which supports the need for ongoing and regular visits to the same location to enable maximum learning to occur. Furthermore, incidental learning opportunities increased as the class explored environments with growing confidence and became responsive to the place they experienced. A distinct finding of the case study was that as children became more aware of their surroundings, a significant increase in curriculum learning occurred.

Within PBOL the teachers consistently refocused their attention to be receptive of the unique curriculum connections that specific places could promote. The teachers enacted incidental opportunities to offer significant enhancements to learning, beyond the planned curriculum. Similarly, Blenkinsop et al. (2016) argue that the goal of the teacher implementing place-based education is to:

Approach any situation that emerges and—having done the preparation with regards to each student and to the curriculum, and having carefully nurtured that curiosity of the world and the flexibility to respond to it—is able to make use of that situation to generate learning (p. 8).
Therefore, adopting a place-responsive pedagogy effectively provided a theoretical platform for planning PBOL. The impetus of control in place-responsive planning is taken from the teacher and becomes dependent on where the learning occurs. According to Blenkinsop et al. (2016) this “challenges the educator to prepare the students and to trust in the students to locate themselves in the place in such a way that they too are able to intuit the materialisation of learning moments” (p. 8). To analyse the position of the case study, revisiting Mannion and Lynch’s (2016) interpretation of a place-responsive planning sequence is helpful. The sequence recognises activities can be place-ambivalent, place-sensitive or place-essential. Sample activities within the case study outdoor learning program have been aligned with the continuum in Table 9.1 Place-responsive activities typology of PBOL.

Table 9.1 Place-responsive activities typology of PBOL.

<table>
<thead>
<tr>
<th>Place-responsive typology</th>
<th>Examples of activities in PBOL</th>
</tr>
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<tbody>
<tr>
<td>Place-ambivalent</td>
<td>Playful learning e.g. Stick Man and Leaf Man story play.</td>
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<tr>
<td>Place-sensitive</td>
<td>Finding small creatures in the playground.</td>
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<td></td>
<td>Andy Goldsworthy art making.</td>
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<tr>
<td></td>
<td>Scavenger hunts.</td>
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<td></td>
<td>Yarning stick material collection.</td>
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<td></td>
<td>Water and weather observations.</td>
</tr>
<tr>
<td>Place-essential</td>
<td>Observations of land features and sensory activities at Ben’s Walk.</td>
</tr>
<tr>
<td></td>
<td>Water walk.</td>
</tr>
<tr>
<td></td>
<td>Diary of a Wombat experiences at Bundanon.</td>
</tr>
<tr>
<td></td>
<td>Worm town walk.</td>
</tr>
<tr>
<td></td>
<td>Map-making activities.</td>
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When analysing the complete PBOL program it became clear that place-ambivalent activities were pre-planned to address specific English outcomes. These tasks could have occurred in any outdoor location, as the focus was not on connection to a specific place but rather as a playful precursor to formal written work. While flexible in their design to encourage maximum creativity, they were not particularly responsive to place and were completely pre-planned by the teachers.
Further investigation reveals that place-sensitive activities within the study were planned to take account of the place where they were to occur. These tasks could not be transported to another location due to the environmental features and were reliant on environmental, weather, student interest and other variables experienced on the day. While these endeavors were sensitive to place and could not be transferred to other locations, they were highly structured with specific pre-planned learning intentions. Consequently, they were not completely responsive to place.

Place-essential activities within the case study eventuated as a result of the children’s connections with the environment where they occurred. These tasks focused on children’s interactions with place and their friends. Significantly, they were not explicitly pre-planned, rather they were scaffolded by the teachers to allow for direct experiences to take precedence. For example the “Worm Town Walk” where the rough plan of sites to visit in town was adapted along the actual route in response to the children’s interest on the day. A significant finding of the case study is that learning outcomes achieved in the place-essential activities were broad and often integrated across subjects, such as the “Water Walk” that integrated Visual Arts and Science outcomes.

A unique finding of this study is that Australian primary school curriculum outcomes can be achieved to a high standard during place-essential activities. When implementing place-sensitive and place-essential tasks it is recognised teachers must possess a high degree of knowledge pertaining to specific locations. This means considerable time is required in the planning, visiting environments and researching the opportunities for learning. As teachers may not have the time nor inclination to dedicate to this prolonged pursuit this is a possible limitation of place-responsive pedagogy.

Mannion and Lynch (2016) recognise a teacher’s own experiences in place impacts on the planning of outdoor lesson sequences. A fundamental factor within the case study was that all educators visited off-site locations before curriculum was planned. Mannion et al. (2015) argue “collaborative planning visits, extended time in natural settings and opportunity for reflection were all useful ingredients in planning excursions, particularly for the ‘novice outdoor’ teachers” (p. 800). Therefore,
evaluation of the place-based components of this research contend the planning of tasks, in conjunction with the place-responsiveness continuum, allowed for maximum outcome attainment and incidental immersive experiences in response to place.

A pivotal finding of the study is that children developed deeper attachments to the places visited. These attachments were the result of implementing a place-based pedagogy. Well into the PBOL program children began to exhibit an increased awareness of local environments and the minor theme regarding care of the environment emerged. Previous place-based researchers have reported increases in care for the environment and localised knowledge in their works (Dyment & Potter, 2015; Hill & Brown, 2014; Lloyd & Gray, 2014; Mannion and Lynch, 2016; Tooth & Renshaw, 2009). Within the case study this was not a strong finding and it only became more apparent as the longer the children were immersed in their local environments.

9.3 Pedagogical limitations.

There are notable limitations within the PBOL curriculum framework, theory, activity planning and delivery. These limitations can be linked to the structured approaches taken by the NSW school system, within which this case study was conducted. Wilson and Powell (2013) also identified similar constraints of this particular educational system. Analysis of the case study data identifies the most significant areas for further pedagogical development as:

- Allowing for a flexible timetable, including being place-responsive,
- Development of meaningful assessment for outdoor learning,
- Playful learning as curriculum,
- The use of reflection.

PBOL was integrated in the regular class academic timetable. However, within the school there remained considerable issues justifying the flexible approach to learning. Waite et al. (2015b) acknowledge “It can help schools to recognise that
outdoor learning is not an ‘extra’ but can be integrated with the curriculum and contribute to school priorities regarding attainment as well as other benefits” (p. 2). Gathering rigorous academic assessment data to measure student academic attainment in the outdoors, could be a way to justify the place of PBOL in the formal school timetable.

Assessment emerged as a substantial curriculum limitation in the planning, design and evaluation of outdoor learning. Waite et al. (2015b) also suggest the issues pertaining to assessment in outdoor learning are substantial and require significant attention. A considerable quantity of the PBOL school based academic data was observational and subjective. The assessment of formalised learning outcomes was meager and requires significant development in the future in order to ascertain what curriculum is successfully achieved outdoors. Partly, the limitation with assessment concerned the ineffective measures to gauge the curriculum success of the scaffolded playful learning experiences.

The research findings imply that playful learning was a vital aspect of the outdoor learning program that was well suited to the developmental age of Year One children. Analysis of playful learning data did not provide strong evidence of a transfer of learning. For example, the story lines children created in response to *The Leaf Men and the Brave Good Bugs* (Joyce, 1996) text during play, was not shown to comprehensively transfer to their formal written work. Therefore, playful learning as curriculum requires substantial further research in order to support its inclusion. In part, the reason for the limitations on play, are that primary school teachers are not adequately equipped to implement or assess this style of learning.

Additionally, Blenkinksop et al. (2016) acknowledge mainstream primary school teachers are generally not trained with the skills of an outdoor educator. These teachers have had professional development in outdoor techniques, the environment, experiential learning and reflection. When the program commenced Annie had no previous experience facilitating lessons outdoors and no personal interest in nature. However, she was willing to explore the outdoors for learning potential. Consequently, I mentored Annie in outdoor pedagogies and she had no issues with the confidence, knowledge or skills required for beyond the indoor classroom.
Specific components of future outdoor teacher training to ensure mainstream teachers are confident in the outdoors would include playful learning techniques, the use of reflection, facilitating risk taking and programming for incidental learning experiences. The key finding here is that mainstream teachers can effectively deliver outdoor experiences when there is an element of mentoring; this might be either at the pre-service stage or through professional development.

A further identified limitation of PBOL is the experience of primary school teachers designing activities in response to place, a component which would also benefit from teacher professional development. However, it is acknowledged that the impacts of outdoor learning, as shown in the case study, are significant and future developments in teachers’ skills can only assist these to increase.

9.4 The impact of outdoor learning. What do children learn as a result of outdoor learning experiences?

The overall impact of PBOL was addressed by answering the second research question “What do children learn as a result of outdoor learning experiences?” Answers to this question can be ascertained by analysing the overall student learning, as presented in the results from Chapters 5–8. The emergent themes of curriculum and engagement, wellbeing and making connections presented the final evaluation of student learning.

9.4.1 Curriculum and engagement.

Positive behaviours for learning exhibited in PBOL exceeded the teachers’ expectations. As the outdoors became increasingly familiar to the children, positive behaviours were further enhanced; for example, children listened to instructions attentively, responded immediately to teacher requests and used resources safely. The children were apt at following the outdoor learning routines, which became autonomous. This enabled the children to focus on the learning intentions rather than rules. Significantly, there were no major behavioural incidents experienced in
outdoor learning. A key finding of the study was that children who found the indoor classroom challenging, for the most part, excelled outdoors.

Outdoors the class remained focused on the specified learning intention of the session. Children often explored new methods of construction, attempted to read and spell unknown words and challenged themselves in unfamiliar tasks. The outdoors became a place of interest, enjoyment and a stimulus for formal learning tasks. Significantly, children were considerably motivated to complete set tasks when in the outdoor environment. Heightened motivation for learning is a common factor amongst outdoor learning program research (Dillon et al., 2005; Hartmeyer & Mygind, 2015; Hornstra et al., 2015; Knight, 2009). Unique to this study is the finding that, motivation to learn also transferred to indoor tasks when activities were linked to the outdoor sessions. In these instances children completed a greater depth and quality of work than in general indoors-only tasks.

As children’s perceived independence and self-confidence to complete tasks grew, the teachers observed an apparent intrinsic motivation to take risks in their learning. Previous outdoor learning research has also highlighted when motivation increases so does independence and self-confidence (Knight, 2009; O’Brien & Murray, 2006). In the case study, as children became confident in their ability, they were increasingly likely to use creativity and imagination during tasks.

During outdoor sessions children independently manipulated natural materials whilst engaging in experiential play, construction building and various map-making tasks. Similar findings are reported by Knight (2009), Mannion et al. (2006), Sobel (1998) and Tanzer (2011). In the case study, children harnessed their imaginations when using natural materials such as in the various map-making activities to represent the buildings, parks, school, river and parks visited. The success of these provides evidence that constructivist and experiential learning methods can achieve curriculum outcomes.

Continual interactions between the children during playful learning enabled the development of oral language skills, as was also found by Kennedy (2001). Analysis of the children’s dialogue with their friends depicts that they were effectively
constructing their own understanding of phenomenon. This finding provides further
data to support the effectiveness of constructivist pedagogy within the PBOL
curriculum framework.

Additionally, in the outdoors children developed and experimented with new
vocabulary to describe plants, land features and natural materials. A decisive finding
in the study is that due to outdoor learning, English vocabulary, speaking and
listening outcomes were achieved, at a higher standard. Evidence is clear in the “Wet
and Dry Environment Triptych” transcripts and the “Leaf Men” narratives. As the
children in the case study developed vocabulary and knowledge to use in tasks their
written work also improved.

9.4.2 Wellbeing.

When answering the second research question regarding what children learnt as a
result of outdoor learning, wellbeing emerged as a paramount theme. Evaluation of
the case study data endorses that there were advancements in the children’s
independence, decision-making and ability to harness responsibility when
completing all manner of tasks. Significantly, this was achieved as the teachers
purposefully entrusted children with decision-making tasks. While outdoors the
children were successfully responsible for their own clothing, Nature Journals, food,
general safety and completion of their own self-directed learning. Beames and Ross
(2011), Beames et al. (2012) and Dillon et al. (2005) concur that responsibility is
promoted in outdoor learning.

A particular discovery of this research is that when the children became familiar with
place, they made dramatic improvements in their responsibility. Over time these
developments ensured increasingly challenging tasks could be completed and
allowed for a greater variety of places to be visited. Coupled with this finding is the
teachers’ observation that the children developed resilience.

The research field notes record children demonstrating their apparent resilience in a
variety of situations during outdoor learning sessions. These situations ranged from
walking longer distances up hills, navigating uneven terrain, walking across the
Ben’s Walk suspension bridge and completing activities in the rain. The NSW DEC *Wellbeing Framework for Schools* (2015) promotes “When individuals are empowered to have control over lived experiences, they build their own resilience” (p. 3). A crucial finding of this research is that the teachers believe resilience strategies were learnt at a far superior rate in the outdoors environment, than inside the general classroom. Additionally, while outdoors the class confronted challenges with an increasing ability to self-regulate their own behaviours.

The final analysis of data provides evidence children exhibiting a lack of self-regulation at the beginning of the year learnt to assess and manage their own behaviours. Being able to self-regulate themselves ensured greater safety, responsibility, risk-management and independence occurred in the outdoors. This is supported by the research of Hornstra et al. (2015) and Maynard (2007) all of which purport self-regulation of behaviours has significant advantages for children’s ability to take calculated physical risks. In the case study, children developed the confidence to take risks that they managed comfortably. Which is also highlighted in previous research (see Knight, 2009; 2011; Mannion et al., 2006; Murray & O’Brien, 2005). Furthermore, assessing risks became intrinsic to the children as they traversed over terrains, climbed trees or engaged in risky play. As the development of physical skills was an observable increase, the ability of individuals to take risks in their learning also emerged.

Children increasingly took risks in their own learning such as to spell or read unknown words on plant identification signs at Booderee National Park and while searching for animals during the “Finding Small Creatures” session. It is proposed that in PBOL children were in control of their learning and eager to complete tasks, without the fear of failure. While risk taking in outdoor learning is not a new finding, it is unique within a curriculum model when referring to academic tasks.

Throughout the case study, children began to interact with a variety of individuals that they would generally not collaborate with. This is a finding similar promoted in the udeskole study completed by Hartmeyer & Mygind (2015). Previous research has also argued that positive relationships and group dynamics are enhanced through participation in outdoor learning programs (Dillon et al., 2005; Hartmeyer &
Mygind, 2015; Murray & O’Brien, 2005; Mygind, 2009; O’Brien & Murray, 2006; Slade et al., 2013). When evaluating the complete data set, a constant theme of social skills development became apparent. Through regular interactions with their peers valuable social skills were learnt; for example in turn taking, leadership, compromise and sharing. As the year progressed, the class had formed interwoven friendships built on trust, fun, enjoyment and care for each other. The NSW DEC (2015) recognises:

> Positive relationships foster connectedness and feelings of belonging and are essential for wellbeing. These relationships are characterised by constructive interactions that provide enthusiastic and genuine support. They are important because they help us to build social and emotional skills and in turn nurture other positive, caring and respectful relationships (p. 3).

Within the case study class, relationships where shown to be supportive, such as when children assisted each other over difficult terrain bush walking at Ben’s Walk, finding materials for construction activities and through their consistent encouragement of each other. Corresponding findings are prevalent in Forest School research (Knight, 2009; Murray & O’Brien, 2005; O’Brien & Murray, 2006). In the case study the teachers recognised that various children took on leadership roles as their perceived self-confidence grew. Often children who took on leadership roles were those who completed outdoor activities in their lives outside of the school gates. This is a unique finding to the case study, which was uncovered due to the in depth data collection, and enabled due to the strong relationship the teachers had with the children.

During outdoor sessions, children developed strong bonds with their teachers. Conversations that would not generally occur inside the classroom could occur in the flexible outdoor environment. This established deep background knowledge for the teachers of the children and consequently strengthened their relationships. Similar impacts have been reported by O’Brien and Murray (2006) and Watchow and Brown (2011). The connection to children’s background knowledge was also fostered due to the high degree of parental involvement in outdoor sessions.
Parental anxiety is reportedly common in outdoor activities (Mannion et. al., 2006). However, within the case study keeping the parents informed with clear information via notes and an open invitation, diminished this apprehension. Assisting the communication practices into the program were the pragmatic structures suggested by Beames et al. (2012) such as the Blanket Consent Form (Appendix F) and Weekly Note (Appendix G). Parents acted as facilitators for learning as well as participants alongside their children. As Mannion et al. (2006) suggests, “the role of parents as mediators of access to environments and freedom to engage in activities in these environments seems critical” (p. 54). Additionally, as supervision was increased due to parental attendance children could safely complete a greater range of riskier activities, such as tree climbing or water play. The high level of parental participation, lack of apprehension and readiness to assist all children in adventurous activities is an exclusive finding of this research. Future comprehensive investigations regarding parental insights into PBOL would assist the development of knowledge in this area.

9.4.3 Making connections.

When investigating the research question “What do children learn as a result of outdoor learning experiences?” the distinctive areas of previous experiences, background knowledge, understanding of Indigenous traditions and attachments to environment, emerged. Throughout activities it was evident there were a vast range of outdoor skills amongst the children dependent on their previous experiences. The children consistently drew on their own backgrounds to shape new understandings; a finding that is in accordance with the philosophy of the constructivist PBOL pedagogy.

Outdoor learning was particularly effective at connecting children’s new understandings with experiences they had shared with their families. Furthermore, children frequently transferred their outdoor learning experiences to their home environments. In part, traditional boundaries between home and school learning were eradicated due to learning in real life contexts. It is postulated this was the result of the authentic pedagogy component of the PBOL curriculum framework.
The class began making connections to Indigenous stories in the initial outdoor sessions. Children utilised the *Black Cockatoo* story to connect to various aspects of place. When visiting the Shoalhaven River, children consistently referred to the *Black Cockatoo* narrative as they could see the land features described in the story. Cameron (2003) has found similar connections with people interacting with Indigenous stories. These findings are significant as they support the Aboriginal and Torres Strait Islander histories and cultures cross curricula priority (2013a) inclusion in the PBOL curriculum framework.

For the children involved in the study, regular visits to the same environments promoted knowledge, attachment and connection to place. The familiarity of the environments enabled the children to fully explore the areas beyond surface level interactions. The depth of knowledge children developed about local environments supports the effectiveness of place-based pedagogies within the PBOL curriculum framework. Additionally, previous place-based and outdoor learning research has presented similar positive findings (see Beames et al., 2012; Chawla, 2015; Kellert, 2012; Loebach & Gilliland, 2016; Rios & Brewer, 2014; Sobel, 1996; 2004). Importantly, the understandings children gleaned in PBOL contributed significantly to the completion of the Sustainability (2013a) cross curricula priority.

Children established a connection to the animals they saw and interacted with. Individuals recognised that animals were an element of the biodiversity of the places visited and became aware of the need to care for animals within them (Chawla, 2015; Slade et al., 2013). As such, outdoor learning became a stimulus to learn about animals in authentic environments (Dillon et al., 2005; Rios & Brewer, 2014). These real world interactions further support the inclusion of authentic pedagogy within a PBOL framework. Significantly, individuals articulated their care and concern for animals living in the natural and built environments.

Care for the environment became a prominent area of learning during the final term of data collection. Connections that were developed over repeated visits enabled children to create a relationship with place, in alignment with the place-based pedagogies within the curriculum framework (Higgins, 2009; Kellert, 2012; Sobel, 1996). Children established a deeper connection with place that stimulated interest in
the care for specific environments; further supporting that PBOL covered aspects of the Sustainability (2013a) cross curricula priority. However, only over time, did these bonds with environments form and to ascertain if an appreciation of the importance to care for the environment was sustained, a longer and more in-depth research study would be required.

9.5 What curriculum learning occurred in PBOL?

Analysis of curriculum data enabled insights into the third research question “What curriculum can be developed in place-based outdoor learning?” The academic content of the PBOL focused on the subjects of English, HSIE, Science and Visual Arts. While not included in the formal PBOL program, PDHPE outcomes were also covered consistently. Due to the curriculum renewal currently occurring in Australia these findings organised to answer this question are unique. As the syllabus documents utilised to plan and assess PBOL have yet to be used in other environmental or outdoor education research.

9.5.1 English.

The most pertinent academic growth within English was the development of communication skills and vocabulary. The findings were exceptionally significant as there is very little previous research in this area. Specifically regarding the combination of the outdoors, curriculum and primary school children. Within PBOL sessions, children used “interaction skills, including active listening behaviours and communicating in a clear, coherent manner using a variety of everyday and learned vocabulary” (Board of Studies, 2012b, p. 75). Their interactions with each other in playful learning and immersive activities, assured they were consistently acquiring and practising new vocabulary to explain their opinions and experiences orally.

The experiences offered in outdoor learning assisted the children to complete the objective of the English K–10 Syllabus (Board of Studies, 2012b) to “communicate with peers and familiar adults about personal experience” (p. 75). The outdoors provided content and situations for the children to talk about and construct their own understandings. This finding is directly related to constructivist pedagogy where
social interactions and vocabulary are promoted. Furthermore, the class was constructing their own knowledge based on the real world experiences included within the implementation of the authentic pedagogical model.

Children began to experiment with new terminology in their conversations and this transferred as they attempted to incorporate unfamiliar words to their writing. For example, children regularly attempted to spell unknown words in their Nature Journals or on paper provided. They would “experiment in all aspects of composing to enhance learning and enjoyment” (Board of Studies, 2012b, p.55). During PBOL children often chose to complete written labels for their constructions. Essentially, meaning they independently directed learning tasks to include experimental writing components.

Children transferred their outdoor contextual knowledge to write formal pieces of work. Texts written after completing playful learning or activities in response to place were evaluated to include a heightened imagination, length and extended use of vocabulary. Examples during the final term of outdoor learning where this was seen are the “Leaf Men” and “Worm Town Walk” texts. However, these written pieces of work often lacked the structure, spelling and grammar found after completing explicitly taught English lessons.

Central to the gains in English was the children’s ability to utilise authentic, real world knowledge to “make deliberate language choices when composing texts” (Board of Studies, 2012b, p. 173). Therefore, their texts based on outdoor experiences were analysed to be factually correct, such as the Booderee Information Report. Often the content for texts included in PBOL drew on HSIE or Science curriculum knowledge.

9.5.2 Science.

The analysis of the Science data presented in the Water (Chapter 6) and Schoolyard Safari (Chapter 8) strongly suggests motivation for the subject increased as a result of PBOL. Children were observed as interested and curious about emerging phenomenon and constantly seeking further understandings in their explorations. In
accordance with understandings of place-based educational theory this study found children became increasingly curious about environments as they became more familiar with them.

The NSW Science K–6 Science Syllabus (Board of Studies, 2012d) aims to develop a sense of curiosity and wonder through actively engaging in the processes of Working Scientifically. The NSW Science K–10 Syllabus (Board of Studies, 2012d) defines children to be Working Scientifically when:

Students identify questions, make predictions and investigate everyday phenomena to explore and answer their questions. They participate in a range of types of investigations, including surveys, testing ideas and accessing information sources. Students follow instructions to collect, record and compare their observations using informal measurements as appropriate (p. 22).

During the case study, the development of Working Scientifically skills ensured children could complete inquiry tasks with increased ability. This is significant as the NSW Science K–10 Syllabus (2012d) emphasises the importance of fieldwork processes and thus far little research has been completed on the implementation of this new Syllabus document. Rios and Brewer (2014) also believe outdoor science can develop scientific processes such as observing, classifying, measuring, communicating and inferring. The evaluation of experiential Science activities within the case study, found the inquiry processes were developed through the use of hands-on and manipulative experiences during outdoor experiences. In outdoor learning the hands-on tasks required the children to consistently use gross and fine motor skills in their interactions with the natural world.

Completing science activities in the outdoors meant children had to interact with authentic contexts. Upon evaluation of the authentic pedagogy methods, it can be ascertained these activities were successful. This is due to the children’s high caliber interpretations of water in a local context and knowledge of where to find small creatures in their school environment. Accordingly, the NSW Science K–10 Syllabus (Board of Studies, 2012d) argues the outdoors provides “authentic contexts for
exploring, investigating and understanding systems in the natural and made environments” (p. 37). Completing science activities in a familiar environment has been reported to enhance academic achievement by Rios and Brewer (2014) and Slade et al. (2013). An identified design limitation of PBOL was that assessment of Science curriculum learning was not explicit. Therefore, it cannot be claimed that PBOL provides higher Science academic outcome attainment than if activities were completed completely indoors.

9.5.3 Human Society and Its Environment/ Geography.

The new NSW Syllabus for the Australian Curriculum Geography K–10 Syllabus (BOSTES, 2015) has been endorsed since the case study learning program concluded. Consequently, HSIE has undergone a title change to Geography as this study has been interpreted. It is acknowledged that learning indicators for the “Landsca­pes” unit are more widely recognised as the subject of “Geography”. Butler (2013) acknowledged the new syllabus document entails a progression from well-known local places through to comparisons of faraway locations. Therefore, the new Geography K–10 Syllabus (BOSTES, 2015) is theoretically aligned with place-based education and encourages children’s immersion in local environments to complete fieldwork and curriculum content.

The HSIE/Geography curriculum content of PBOL was effectively covered in an outdoors environment. Largely guided by implementing the place-essential components (Mannion & Lynch, 2016) activities were responsive to place. Meaning they could only occur in the environment where they were situated as they emerged from contextual factors. The most significant finding in this subject was that the “Landsca­pes” place-essential activities successfully accomplished the set academic outcome (Board of Studies, 1998a). Saliently, the majority of this unit was taught in the outdoors by immersing children in local environments. Children completed the environmental trypitch activity to assess their knowledge of wet and dry environments. Results from this assessment indicate a high standard of in-depth knowledge of local places was obtained as a result of direct experiences in authentic environments.
Fieldwork components completed in PBOL included direct experiences, mapping environments and the use of geographic equipment. The Geography K–10 Syllabus (BOSTES, 2015) promotes the use of geographical tools such as visual representations and maps. During the planning of outdoor sessions children regularly looked at maps to ascertain a location, the distance, devise a route and the type of environment they would be visiting. In effect, it was not the teacher who organised the itinerary, instead children proposed routes by using maps and authentic knowledge. This was exemplified when the children devised the “Worm Town Walk” route. Accounting for places of interest and distance the class illustrated authentic real world understanding and their own construction of knowledge. Consequently, overall analysis of this style of activity promotes the use of authentic and constructivist pedagogy within the Geography subject.

Butler (2013) acknowledged maps should be used to enable simple inquiry activities. Within the case study, children successfully referred to online maps to find the distances and the time it would take to travel certain routes. The children developed spatial thinking, which according to Dolan (2016), “is important for all daily navigational functions including estimating distance, direction and rate of speed” (p. 7). Engaging in physical map-making is an important aspect of place-based education (Sobel, 1998). In the case study, children gained understandings of place as they constructed natural material maps in the playground and at the off-site locations of Ben’s Walk, Bundanon and Booderee National Park. These visual representations established geographical knowledge of related places, developed vocabulary to describe environments and allowed the children to creatively manipulate materials whilst employing their artistic skills. Additionally, map-making is another example of advantageous place-essential activity that completes curriculum outcomes.

9.5.4 Visual Arts.

PBOL granted children many opportunities for incidental, informal and formal art activities. The NSW K–6 CAPA Syllabus (2001) advocates for authentic visual arts experiences based on real phenomenon and experiences. Additionally, Gray and Birrell (2015) postulate “the Arts are a powerful tool for engaging students in cross-
curriculum learning” (p. 6). In the case study children engaged with visual arts components while harnessing their cross-curricula knowledge, such as in the Landscapes unit when they completed wombat drawings at Bundanon, and their “Wet and Dry Environment Triptych” artworks. Providing an authentic context for the artworks enabled children to interpret places creatively and independently. The children demonstrated a place-responsiveness through their representation of places. A significant example was when Bruce twisted bark during the “Water Walk” session to make water currents, demonstrating he was experimenting in response to his observations of the Shoalhaven River.

Children were able to utilise loose parts as art materials by completing lessons outdoors. Engaging with different forms of artworks and materials is recommended in the NSW K–6 CAPA Syllabus (2001). When analysing the end of year interview data, a key finding was a number of the focus children articulated the outdoors had materials for art making that the classroom did not provide. They had effectively realised the potential of the outdoors to use natural materials. Furthermore, outdoor learning created an interest and enjoyment for creating artworks.

Evaluation of the art components found the children were laughing, socialising with their friends and eagerly creating artworks concurrently. Therefore, PBOL can be reported to align with the NSW K–6 CAPA Syllabus (2001) requirement to “include learning experiences that will develop students’ confidence, enthusiasm, enjoyment and independence in learning in the artforms” (p. 98). The most momentous example fulfilling this in the case study was during the Andy Goldsworthy ephemeral art of the “Patterns and Sounds” session. This session saw the children thoroughly engaged in the task at hand, producing artworks of a high standard and showing enthusiasm to complete the set learning intention.

An additional key finding of the study was that when creating artworks children practiced their fine motor skills. While individuals collected items and used loose parts in their designs, they manipulated small objects with increasing confidence. This is important as fine motor skills assist in classroom tasks such as holding a pencil, using scissors and utilising smaller pieces of equipment. Significantly, when the yarning stick activity was first implemented the children required help to attach
materials. The activity was repeated six months later and the children could attach materials independently. The development of fine motor skills during a primary school outdoor learning program is a unique finding to this case study that has previously not been evaluated.

9.5.5 Personal Development, Health and Physical Education.

Personal Development, Health and Physical Education (PDHPE) (Board of Studies, 1999a; 1999b) was recognised from the outset as an inclusion in the PBOL program. However, as the bulk of data would have been too immense it was beyond the scope of this study to comprehensively analyse this subject within an integrated curriculum. Notwithstanding this, it is salient to note the significant findings within this subject, which relate to gross motor skills and interpersonal relationships.

The outdoor learning program contributed notable developments to children’s interpersonal relationship skills. While this was not unexpected, the degree that they resonated throughout daily school life was. Dillon et al. (2005) argues interpersonal skills cannot be practiced in a classroom environment to the same extent as in the outdoors. In PBOL sessions, the communication, group dynamics and the high degree of concern children consistently demonstrated for each other, was consistently evident. Never more so exemplified than when the children were traversing over challenging terrain on Ben’s Walk. Children’s gross motor skills were challenged as they walked, ran and climbed on the uneven natural surfaces or climbed trees. Importantly, at its very core outdoor learning also promoted an active lifestyle when children participated in off-site ventures, walking up to 5km in a session. As already stated, it was beyond the scope of the case study to research PDHPE outcomes more fully. Similarly content directly relating to Mathematics was not included, however many components were incidentally covered. These included positional language, length and area. These are recognised limitations of the case study with respect to the subjects covered in PBOL. Further limitations are included in the following section of this chapter.
9.6 Case study research limitations.

There were obvious and transparent limitations within the PBOL case study. These were acknowledged throughout the research design, process, analysis and evaluation. Most significantly, the small sample size involved in the outdoor learning program meant the data were drawn from a limited number of children and educators.

Outdoor learning activities only occurred over the duration of three school terms in one school year. Therefore, there was a very small section of the mandated curriculum outcomes included in the case study. The research design allowed for academic data collection to occur from school based assessments, which would generally occur in the classroom. However, these assessments did not accurately depict the learning attributed to indoor and outdoor environments, the effective transfer between outdoor learning and formal writing tasks or involve pre and post testing to measure actual learning gain. Science, HSIE/ Geography and Visual Arts assessments were particularly underwhelming and there was little useful data collected to gauge academic outcome attainment as a direct result of completing PBOL.

Connection to nature was difficult to gauge over the short timeframe. Whilst the results depict the children having strengthened their relationships with place, it is unclear if these bonds will be maintained. The Connection to Nature Index (CNI) (Cheng & Monroe, 2010) was not an effective way to measure children’s connection to place, as the timeframe between testing was not long enough, concepts were too advanced for the children’s developmental age and a simple survey did not allow for verbal articulation of ideas regarding the set questions. However, the adapted photo elicitation and use of categories of the CNI (Cheng & Monroe, 2010) proved useful in organising ideas as the case study progressed.

9.7 Recommendations for future practice, professional development and research.

The recommendations for future practice, professional development and research became apparent as the case study progressed. While there has been a recent
emergence in research regarding outdoor learning and place-based education at a primary school level (Blenkinsop et al., 2016; Mannion et al., 2015; Waite et al., 2015b), there are significant areas requiring further exploration. This case study extends on these existing works and makes further recommendations.

9.7.1 Recommendations for further pedagogical developments.

The PBOL case study made significant developments in understanding the pedagogical processes that enable opportunities for an outdoor curriculum. There are considerable adaptions to the curriculum framework depending on the location, age and needs of the children within the program. General recommendations in the categories of cross curricula learning, curriculum learning and place-based learning are as follows:

Cross-curricula priorities

- Further incorporation of the sustainability concepts within PBOL with specific reference to the cross-curricula perspectives, including local issues and practical skills within a school setting.
- Inclusion of further explicit Indigenous ways of knowing, language and story within PBOL. This would require substantive dialogue with local Indigenous elders and communities.

Curriculum learning

- A heightened awareness of the transfer of learning, between the outdoor and indoor learning environments. Specific attention to ways in which the outdoors can be a stimulus for formal indoor tasks and how concepts such as spelling or grammar can be promoted in the outdoors.
- Develop effective assessment strategies for outdoor learning activities, with paramount importance being placed on constructivist learning and assessment strategies that complement this pedagogy.
- Develop PBOL curriculum with a greater emphasis on reflection by children during and at the end of each outdoor session. Particular reference to experiential learning cycles would assist in the development of this area.
Place-based learning

- PBOL pedagogy adaption to upper primary level, with notable increases in community-based projects, extended inquiry or problem solving tasks and independent modes of learning.
- Place-based curriculum units to be devised in conjunction with the new NSW Geography K–10 Syllabus (BOSTES, 2015).

9.7.2 Recommendations for further practice, policy and professional development.

For PBOL to be incorporated at a systems level there needs to be considerable progression in practice, policy and professional development. Currently in Australia there are no mandates or directions to implement outdoor learning that would greatly assist the initiation of PBOL in schools. Professional development programs, in conjunction with the new Australian curriculum incorporating the outdoors, would greatly assist teacher confidence and skills to use the outdoors as a learning site. The following recommendations are based on findings presented in the case study documentation and from teacher feedback when having presented my doctoral work at various conferences.

Practice

- Consider school design of playgrounds to enable natural play in outdoor learning, where landscape architects, teachers and children alike are consulted during their planning and development. Playground areas need components to encourage loose parts play and places where creativity and imagination can develop. Uneven terrain, logs and various natural components need to be included to allow for the development of gross motor skills.
- Teachers need to become aware of the immediate areas surrounding their schools to develop an understanding of potential learning sites. In the planning stage of outdoor learning, educators must visit any locations to ascertain place-responsive curriculum potential, and risk assessments.
- Plan outdoor learning to allow for flexibility, incidental learning and place-responsiveness.
• Pragmatic structures to support PBOL are to be organised at class, school and systems levels and need to incorporate flexible timetables, risk management, participant information and parental consent forms.

Policy
• Implement a whole school approach to outdoor learning, which will require significant support from local educational departments and school leadership teams to be truly effective.
• Make outdoor learning more widely available in Australian primary schools by implementing policy recommending the utilisation of the outdoors for learning. For example, within the Science (BOSTES, 2012d) and Geography (BOSTES, 2015) Syllabus documents there is the mandatory use of fieldwork, where recommendations could be made for components of this to be completed outdoors.

Professional development
• Outdoor pedagogies to be included in pre-service teacher training courses for primary school teachers and accredited professional development for existing teachers. Specifically, include information regarding place-responsiveness as a guide to planning outdoor learning.
• Teachers to participate in Science and Geography professional development with a focus on utilising the outdoors for fieldwork.
• Teacher professional development to be devised in the area of play within the curriculum, especially for educators working with Kindergarten to Grade 2 classes; including opportunity for teachers to ascertain the value of play for social skills, oral language and vocabulary development and the encouragement of creativity within the curriculum.

9.7.3 Recommendations for further research.
The recommendations for further research regarding outdoor learning in primary schools are plentiful and cover a broad range of concepts. These recommendations can be organised under the themes of: children, parents, teachers, pedagogy and research design.
Children

- Outdoor learning provision could be explored including implications and effects for children with additional needs such as ADHD, Autism Spectrum Disorders, speech and cognitive delays.
- Studies which focus on the social networks of children that are developed in outdoor learning, could be undertaken.

Parents

- Parents’ views on the effects outdoor experiences had for their child, subsequent family experiences and their own involvement in the program to be completed as qualitative studies are recommended.

Teachers

- Teachers’ perspectives of and confidence with outdoor learning within their regular teaching program could be ascertained through qualitative, reflective studies, especially with regards to implementing the pertinent constructivist learning theories.

Pedagogy

- Studies that focus on the transfer of playful learning within the English curriculum to formal written work, measuring children’s success against formal written outcomes over the course of a year or longer could be conducted.
- Effective assessment strategies for outdoor learning could be compiled into research reports to depict academic attainment within an integrated curriculum.

Research design

- Longitudinal studies of outdoor learning to explore connection to place over children’s childhood and beyond. Specifically in regards to children’s connection to places visited during PBOL sessions.
- Where whole schools have implemented outdoor learning, a large-scale case study could ascertain how school grounds and local areas can be utilised to
best suit the developmental ages of children. This would be particularly relevant to the fieldwork components of the Science and Geography syllabus documents.

- Comparative studies between classes who complete outdoor learning and those that do not are suggested. These studies could focus on affective or academic outcomes, alternately both could be compared.
- Further implementation of Go Pro cameras as an aspect of observations to gauge children’s participation in outdoor learning would be relevant.
- Qualitative measures to collect data regarding risky play, independence, resilience and self-confidence need to be refined for use in an outdoor learning context. These measures then need to be completed alongside academic testing to gain a holistic case study of PBOL.

Within the case study there was a considerable amount of data collected from a wide variety of sources. The most helpful in answering the research questions were the use of photographs taken by children and the associated interviews. These data sets provided the greatest insight into the experiences the class had. Additionally, the observations I conducted alongside the GoPro footage offered significant depth to the research. The level of understanding was greatly enhanced by using multi modal observations, especially in regards to behaviours for learning and engagement on tasks. The least useful data collected was from the CNI and the associated interviews where the research tool was too advanced for the children. Furthermore, this tool offered a stringent structure to data collection which did not allow themes to emerge from experience as they occurred.

9.8 Significance and conclusions of the PBOL case study.

The case study demonstrated significance in a number of ways, across both academic and affective domains by answering the set research questions. Importantly, the curriculum framework of PBOL is the first of its kind in an Australian context to be rigorously researched. Drawing on various examples of outdoor learning, a best practice model was developed for NSW Primary Schools. To guide the development
and implementation of learning activities the study enacted a place-responsive pedagogy.

The pragmatic components presented are unique to the Australian setting. The curriculum focused nature of PBOL was critical, enabling integrated learning to occur within the subjects of English, HSIE/ Geography, Science and Visual Arts. Additionally, the scope for implementing PDHPE in the outdoors was recognised. Having completed the case study at a time of complex curriculum renewal in Australia ensured the research presented is inaugural. As the syllabus documents are recently released, many are yet to have research conducted on their contents or implementation.

In conjunction with the syllabus documents, academic attainment, creativity and imagination were all enhanced as a result of completing outdoors curriculum. The school based quantitative data depicts the class to have achieved at or above a standard year of learning growth, when measured alongside standardised assessments. This learning gain provides evidence that spending approximately 10%-15% of the class’ year outside the classroom was not detrimental to their academic learning growth. Indeed the achievement at or above standard year of learning growth suggests that it is the opposite of detrimental. The results indicate learning outside the classroom was in fact beneficial to the children’s overall curriculum learning. Qualitative evidence postulates that major advancements in children’s oral language and vocabulary development occurred as a result of the direct, immersive nature of outdoor learning. The transfer of ideas to formal written work was tangible across the curriculum.

Additionally, it is argued that children’s motivation to learn, engagement levels in tasks and attention to the specified learning intention was greater as a result of outdoor learning. The classes’ positive behaviours for learning increased throughout the case study, school based reporting also notes no behavioural issues occurred while in PBOL. Children learnt to self-regulate their actions while taking risks to complete learning activities. The class’ perceived resilience to achieve challenging tasks grew steadily throughout the program.
Children developed steadfast interpersonal skills and an ability to engage during group work activities. Valuing parental involvement and children’s background knowledge was paramount in PBOL. Children connected to Indigenous knowledge, the environment and animals grounded in and on their prior knowledge. New understandings were formed based on immersion in local places, which in time children increasingly reported their attachments to and understandings of how to care for.

The reported PBOL framework and associated case study findings offer significant insights into the practical application of an outdoor learning framework. Importantly, this research can be utilised as a best practice example and the principles applied to other education systems.

9.9 Reflections and impact of the PBOL case study.

The nature estranged lifestyle of many children today is arguably a cause for considerable concern. My firm assertion is that a connection to the natural world begins during childhood. It is from this viewpoint where my initial motivation to complete this study originated. Having experienced a childhood exploring, creating and enjoying the natural world, I could see that the children in the primary school classes I was teaching were not afforded the same opportunity. My argument as a teacher was that children should not be missing out on the interactions of the natural world. Therefore, offering children the time to interact with the world outside the classroom was a way I could give others outdoor opportunities. Embarking on, and designing a place based model for this study, assured the outdoors would be a significant placeholder within the weekly experiences of the children in my class. The justification of the outdoor learning concept was that curriculum would be taught outside the classroom and academic learning time would not be lost.

By comprehensively addressing the research questions this study provides answers to “How can place-based outdoor learning enrich children’s education in a primary school?” The pedagogical approaches most effective in PBOL are those within constructivist educational theory, namely social constructivism, authentic learning theory and experiential education. These theories all promote children’s active
construction of their own unique understandings of phenomenon within a social setting. The constructivist theories are common to primary school teachers and used in their indoor teaching; using them outdoors is unique. Teachers who implement constructivist theories in the outdoors present their classes with steadfast learning theory in a unique environment. Empowering primary school teachers to take their classes outdoors does not mean they need to be outdoor educators, rather innovative educators who see the world outside the classroom as an enriching site for learning. The combination of well known educational methods in the natural world has heralded substantial benefits in the outdoor learning case study. Additionally, place-based educational theory continually reinforced the need to immerse children in local environments. Connecting children to their nearby places benefitted curriculum knowledge and an increased understanding of local places. Giving the children nature experiences within the curriculum at the beginning of their formal schooling enables a focus on the local natural world from the start. Significantly, the case study found that curriculum outcomes could be effectively covered when implementing place-responsive planning.

Curriculum covered in the outdoors environment promotes vocabulary development, motivation to complete written work, engagement on tasks, acquisition of Working Scientifically skills, an understanding of geographic fieldwork tools, development of fine and gross motor skills and an increased creativity to complete artworks. English, Science, HSIE/Geography, Visual Arts and PDHPE were all areas of academic outcome attainment within PBOL. The learning growth in these areas is of major importance within an educational system that rigorously assesses academic growth throughout all subjects. Beyond the curriculum children made considerable gains in their wellbeing, in terms of positive relationships, leadership skills, self-regulation, risk taking, responsibility and resilience. Children connected their learning to previous experiences, their background knowledge, Indigenous cultures and the environment. The children began to engage with caring for the environment at the local level, which is appropriate for their stage of development. These traits bode well for future actions in national and global environmental stewardship.

My original motivation was to ensure children connected with their local environments, to learn to love their natural world. The case study did achieve this
substantial goal. While the ongoing nature of the children’s connection to nature is at this stage unknown, the future will hold the answers if this program was able to spark an interest to explore places near and far throughout their lives. At this stage it is certain that they have formed a relationship with their local environments, and as a result the PBOL program was a resounding success. The ongoing effects of the PBOL program are evident in the school community where it was run. Children and families connected are the strongest advocates for outdoor learning. In my ongoing interactions with them as a member of a small community, there is enduring praise for the program, photographs of the outdoors being shared and a heightened awareness of the local area as families frequently visit the outdoor learning sites. While these are not included in the case study data, hopefully one day these stories and the ones still to come will be published in recognition of a group of children who embraced outdoor learning for all it was worth. Hopefully their connections with the outdoors are only just beginning.
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Consider Young Children's Interaction with and Comprehension of Images. In SAGE


## Appendix A: Data Schedule

<table>
<thead>
<tr>
<th>Term 2 Data Collected</th>
<th>Week 2</th>
<th>Week 3</th>
<th>Week 4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Holiday</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Week 2</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Walk: Constante</td>
<td>Mario</td>
<td>Jessica</td>
<td></td>
</tr>
<tr>
<td>Event: walking / turning stick</td>
<td>Tag</td>
<td>Henry</td>
<td></td>
</tr>
<tr>
<td><strong>Week 3</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bandanna filming</td>
<td>Lily</td>
<td>Griffin</td>
<td></td>
</tr>
<tr>
<td><strong>Week 4</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The Great Expedition</td>
<td>Bruce</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water</td>
<td>Henry</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stick Man</td>
<td>Mario</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water Walk / River</td>
<td>Lucy</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Week 5</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Week 6</strong></td>
<td></td>
<td></td>
<td>CANCELLED / AOC</td>
</tr>
<tr>
<td><strong>Week 6</strong></td>
<td></td>
<td></td>
<td>CANCELLED / AOP</td>
</tr>
</tbody>
</table>

**Notes:**
- Mario: Short generic observation.
- Jessica: Short generic observation.
- Tag: Short generic observation.
- Henry: Short generic observation.
- Lily: Short generic observation.
- Griffin: Short generic observation.

**Term 1 Data Collected**
- 6x general observation photos (pp. 3).
- 2x general observation videos (pp. 6).
- Interviews with children: Formative feedback and planning.

**Term 2 Data Collected**
- 3x general observation videos (pp. 3).
- Interviews with children: Formative feedback and planning.

**Holiday Break**
- Short generic observation.
- GoPro footage (pp. 3).

**Week 2**
- Detailed observations including: Interview with children (transcribed in Notes 1).
- GoPro footage (pp. 3).

**Week 3**
- Detailed observations including: Interview with children (transcribed in Notes 1).
- GoPro footage (pp. 3).

**Week 4**
- Detailed observations including: Interview with children (transcribed in Notes 1).
- GoPro footage (pp. 3).

**Week 5**
- Detailed observations including: Interview with children (transcribed in Notes 1).
- GoPro footage (pp. 3).
- Interview with children: Formative feedback and planning.

**Week 6**
- Interview with children: Formative feedback and planning.
- Interview with children: Formative feedback and planning.
- Interview with children: Formative feedback and planning.
- Interview with children: Formative feedback and planning.
Appendix B: Blog entry.

June 13, 2014
Leave a comment

The emergence of the mega group and mega structure

Over the last 6 weeks the children have grown in confidence when being in the outdoors. When we were observing the kids out there learning this week we noticed a couple of distinct changes when they make structures.

1) The groups have grown in size. Where is used to generally be 1 – 3 children working together, there are now mega groups of up to 7 children working together.

2) The size of their constructions is rapidly increasing. There is an increasing amount of large scale constructions emerging, taking on whole sections of the outdoor space. The children are using creativity and in depth problem solving when making their worlds.

This stick man house, had a welcome mat, sun hung up in a nearby tree and any room you could imagine. All built around a branch they were calling the family tree. Not once did they ask for help like was happening in the first weeks.

The delicate constructions like the Week 1 nest in the first couple of photos in this post still exist. Even these are growing in size.

They really are growing to use the space for all it’s potential.
Appendix C: Ethical consent information.

Participant Information Sheet – Focus Children (Parent/ Caregiver)

Project Title: Can place-based outdoor learning enrich curriculum in Australian primary schools?

Who is carrying out the study?
Your child is invited to participate in a study conducted by Amanda Lloyd, a PhD student at the Centre of Educational Research (CER) School of Education, which will form the basis of a PhD degree at the University of Western Sydney (UWS) under the supervision of Dr Tonia Gray (Associate Professor).

What is the study about?
The purpose is to investigate Year One students completing a place-based outdoor learning program. The class will complete their normal curriculum activities in a varied setting by their classroom teacher. The program will be delivered to the whole class in afternoon, half-day and whole- day sessions over a duration of three terms. The learning activities will occur in the playground, on the block where the school is located and in local parklands. The research is aiming to understand the children’s academic, environmental, social, emotional and creative learning outside the classroom.

What does the study involve?
The researcher will be present at all sessions to conduct observations and research activities. Additional research will occur outside the specified outdoor learning sessions, within school hours. This includes completing a simple survey about nature and the children offering their thoughts about photographs of nature. The use of outdoor learning spaces will be evaluated through listening to the voices of the focus children and looking at their curriculum based work. The children will be completing their normal learning in a different environment.
There will be eight focus children chosen at random from the class for more in-depth research activities. They will be involved in taking photos of their work and learning environment. Informal and semi-formal interviews will occur as they describe the photos or their work samples. These children will each keep a journal where they write/draw their thoughts about the outdoor learning sessions.

There will be photographs take by children in the learning sessions and your child may appear in these. This may be the subject of the photograph or the background. At certain times there will be audio and visual recordings taken as part of the study; your child could feature in these.

**How much time will the study take?**

Recordings will be collected once a week during the place-based outdoor learning sessions. This will be on a Thursday for an afternoon, half-day or a whole day depending on the learning activity planned. Additional research tasks completed by the focus children will also be completed on a Thursday in school time. This will take approximately 30 minutes twice a term for the focus children and will be conducted in the school community room.

Data will be stored in a locked filing cabinet at UWS for a duration of five years, after which they will be destroyed. The data will be used to collate findings for the researchers thesis and for publication in academic journals/presentations.

If you have concerns about what has been recorded, you may access recordings of your child within the period of storage. These recordings can be accessed by contacting the researcher or supervisor.

Children not participating in the study will be able to complete in the place-based outdoor learning program with their peers. Their data will not be collected and any images of them will be destroyed.

**Will the study benefit me?**

The study may benefit the children completing the place-based learning program as they will have additional support from the teaching staff at the school. They may benefit from the innovative approach to learning.
**Will the study have any discomforts?**
The study does not have any perceived discomforts. In the event that a child experiences discomfort the child is allowed to cease any activity and not proceed. If they choose not to proceed they will not suffer any consequences and will complete the learning program with their peers.

**How is the study being paid for?**
The study is part of Amanda Lloyd’s PhD research which is financially supported by a Australian Postgraduate Award Scholarship and additional UWS funding.

**Will anyone else know the results? How will the results be disseminated?**
All aspects of the study, including results, will be confidential and only the researcher will have access to information on participants.

**Can I withdraw my child from the study?**
Your child’s participation in the study is entirely voluntary: you are not obliged to consent. Your child may withdraw from the study at any time - or you may withdraw your child from the study at which point all written, photography and audio records of your child’s participation will be destroyed.

**Can I tell other people about the study?**
Yes, you can tell other people about the study by providing them with the chief investigator contact details. They can contact the chief investigator for further information.

**What if I require further information?**
When you have read this information Amanda Lloyd will discuss it with you further and answer any questions you may have. If you would like to know more at any stage, please feel free to contact:

<table>
<thead>
<tr>
<th>Miss Amanda Lloyd</th>
<th>Dr Tonia Gray</th>
</tr>
</thead>
<tbody>
<tr>
<td>PhD Student</td>
<td>Associate Professor/ Supervisor</td>
</tr>
<tr>
<td>0402912112</td>
<td>02 4736 0102</td>
</tr>
</tbody>
</table>
What if I have a complaint?
If you have any complaints or reservations about the ethical conduct of this research, you may contact the Ethics Committee through the Office of Research Services on Tel +61 2 4736 0229 Fax + 61 2 4736 0013 or email humanethics@uws.edu.au
Any issues you raise will be treated in confidence and investigated fully, and you will be informed of the outcome.
If you agree to participate in this study, you may be asked to sign the Participant Consent Form.
Participant Consent Form for Parents/ Caregivers (Focus Children)

Project Title: Can place-based outdoor learning enrich curriculum in Australian primary schools?
I, (print name) ……………………………………………………, give consent for my child (print name) to participate in the research titled “Can place-based outdoor learning enrich curriculum in Australian primary schools?”

I have read the participant information sheet (or where appropriate, ‘have had read to me’) and have been given the opportunity to discuss the information and my child’s involvement in the project with the researcher.

The procedures required for the project and the time involved have been explained to me and any questions I have about the project have been answered to my satisfaction.

I have discussed participation in the project with my child and my child agrees to their participation in the project.

I understand that my child’s involvement is confidential and that the information gathered in the study may be published but no information about my child will be used in any way that reveals my child’s identity.

I understand that my child’s participation in this project is voluntary. I can withdraw my child from the study at any time, without affecting their academic standing or relationship with the school and they are free to withdraw their participation at any time.

I consent to the collection of academic records and work samples, completion of a survey (the Connection to Nature Index), photographs of my child in the learning site as the subject or in the background, my child taking photographs, taking part in semi-structured and informal interviews, journaling and observations (including video footage). Please cross out any activity that you do not wish your child to participate in.

<table>
<thead>
<tr>
<th>Signed (Parent/caregiver):</th>
<th>Signed (child):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name:</td>
<td>Name:</td>
</tr>
<tr>
<td>Date:</td>
<td>Date:</td>
</tr>
</tbody>
</table>

Return Address:
Amanda Lloyd (Centre for Educational Research (CER) School of Education)
University of Western Sydney
Locked Bag 1797
Penrith NSW 2751
Australia

This study has been approved by the University of Western Sydney Human Research Ethics Committee.
The Approval number is:
If you have any complaints or reservations about the ethical conduct of this research, you may contact the Ethics Committee through the Office of Research Services on Tel +61 2 4736 0229 Fax + 61 2 4736 0013 or email humanethics@uws.edu.au.
Children’s Consent Form

*Draw a smiley face for YES and an unhappy face for NO.*

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you know what research is?</td>
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<tr>
<td>Would you like to be a part of the outdoor learning research?</td>
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<tr>
<td>Would you like to draw and write about your experiences of learning outdoors?</td>
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<tr>
<td>If you do not want to participate in the research on any day that is OK.</td>
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</table>

Signed: ___________________________ Date: ____________
Re: Ethical approval University of Western Sydney

Locked Bag 1797 Penrith NSW 2751
Australia Office of Research Services
ORS Reference: H10504 14/001670

24 March 2014

Associate Professor Tonia Gray School of Education

Dear Tonia,

I wish to formally advise you that the Human Research Ethics Committee has approved your research proposal H10504 “Can place-based outdoor learning enrich curriculum in Australian primary schools?“, until 1 June 2015 with the provision of a progress report annually and a final report on completion.

Conditions of Approval
1. A progress report will be due annually on the anniversary of your approval date.
2. A final report will be due at the expiration of your approval period as detailed in the approval letter.
3. Any amendments to the project must be approved by the Human Research Ethics Committee prior to the project continuing. Amendments must be requested using the HREC Amendment Request Form: http://www.uws.edu.au/_data/assets/pdf_file/0018/491130/HREC_Amendment_Request_Form.pdf
4. Any serious or unexpected adverse events on participants must be reported to the Human Ethics Committee as a matter of priority.
5. Any unforeseen events that might affect continued ethical acceptability of the project should also be reported to the Committee as a matter of priority
6. Consent forms are to be retained within the archives of the School or Research Institute and made available to the Committee upon request

Please quote the registration number and title as indicated above in the subject line on all future correspondence related to this project. All correspondence should be sent to the email address humanethics@uws.edu.au.

This protocol covers the following researchers:
Tonia Gray, Son Truong, Karen Malone, Amanda Lloyd

Yours sincerely
Professor Elizabeth Deane
Presiding Member, Human Researcher Ethics Committee
Re: Ethical approval Catholic Education Office Wollongong

14 April 2014

Dear Amanda,

Re: Application to undertake the research project entitled: “Can place-based outdoor learning enrich curriculum in Australian primary schools?”

Acknowledgement is made of your application to conduct the above mentioned research within the Diocese of Wollongong.

Approval has been granted for you to proceed at a general level in the Diocese of Wollongong for 2014 and to approach the Principal of [Name Redacted].

In accordance with the agreement permitting you to conduct your research within the Wollongong Diocese, I would ask that provide a summary report of the project at your earliest convenience and within 6 months of the completion. Alternatively, inform me if the research project is discontinued, as this information will enable us to keep our records and files updated.

Please do not hesitate to contact me on 4253 0935 if you have any further enquiries. I wish you well with this undertaking and look forward to receiving your final report. Yours sincerely,

Cheryle Brennan Acting Team Leader Human Resource Services Catholic Education Office Diocese of Wollongong cheryle.brennan@dow.catholic.edu.au

CATHOLIC EDUCATION OFFICE, DIOCESE OF WOLLONGONG

Marian Centre

86 - 88 Market Street Locked Mail Bag 8802 Wollongong NSW 2500 TEL 02 4253 0800 FAX 02 4253 0870 EMAIL info@dow.catholic.edu.au WEB www.dow.catholic.edu.au

ABN 67 786 923 621
Appendix D: Semi-formal interview questions.

<table>
<thead>
<tr>
<th>Semi-formal interview questions</th>
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<tbody>
<tr>
<td><strong>Enjoyment of nature</strong></td>
</tr>
<tr>
<td>What did you look at today?/ What did you observe?/ What did you see in the outdoors today?</td>
</tr>
<tr>
<td>What did you touch/ feel today?</td>
</tr>
<tr>
<td>How did those things make you feel?</td>
</tr>
<tr>
<td>What was your favourite part of nature today?</td>
</tr>
<tr>
<td>What was your least favourite part of nature today?</td>
</tr>
<tr>
<td><strong>Sense of oneness</strong></td>
</tr>
<tr>
<td>Tell me about how you felt in the outdoors today.</td>
</tr>
<tr>
<td>Can you tell me about anything you learnt about your relationship with the earth today?</td>
</tr>
<tr>
<td>Are there any stories that remind you of how you felt in the outdoors today? Tell me about them.</td>
</tr>
<tr>
<td>How did you feel in the outdoors today?</td>
</tr>
<tr>
<td><strong>Empathy for creatures</strong></td>
</tr>
<tr>
<td>What animals did you see today?</td>
</tr>
<tr>
<td>Did you touch them? Get close to them?</td>
</tr>
<tr>
<td>Did you like the animals that you saw today? Why or why not?</td>
</tr>
<tr>
<td>What did you think when you touched/ felt it?</td>
</tr>
<tr>
<td>Why would the animals like the environment we visited today?</td>
</tr>
<tr>
<td><strong>Responsibility</strong></td>
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<tr>
<td>Can you think of anything we did today that was being kind to the environment? Or learning about how to be kind to the environment?</td>
</tr>
<tr>
<td>Why is it important/ or not important that we have (e.g. water tank, chook shed)?</td>
</tr>
<tr>
<td>Do you think now you know about the (e.g. water tank, chook shed) you will think about it/ use it in the future? Why?</td>
</tr>
<tr>
<td><strong>Making connections</strong></td>
</tr>
<tr>
<td>Did anything we did today remind you of something you have done with your family or friends? What?</td>
</tr>
<tr>
<td>How? When?</td>
</tr>
<tr>
<td>Can you tell me what you learnt outside today? Have you done anything like that in the classroom?</td>
</tr>
<tr>
<td>What was that?</td>
</tr>
<tr>
<td>Where do you think you learnt about …………. better/ worse?</td>
</tr>
<tr>
<td>Will you tell your mum/ dad etc about what you did in outdoor learning today?</td>
</tr>
<tr>
<td>Tell me about your learning today……….</td>
</tr>
<tr>
<td><strong>Relationships</strong></td>
</tr>
<tr>
<td>Who did you play/ work with today?</td>
</tr>
<tr>
<td>Why did you choose to work with those people?</td>
</tr>
<tr>
<td>Did they teach you anything?</td>
</tr>
<tr>
<td>Will you work/ play with them again? Why or why not?</td>
</tr>
<tr>
<td>Tell me about the adults that were in the outdoors with you today.</td>
</tr>
</tbody>
</table>
Appendix E: Curriculum content overviews.

### A Journey in Place and Water (PART A)

<table>
<thead>
<tr>
<th>Term</th>
<th>Curriculum Areas</th>
<th>Curriculum Titles</th>
<th>Cross Curricula</th>
<th>Outdoor Sites</th>
</tr>
</thead>
<tbody>
<tr>
<td>Term 2 (Weeks 1 – 4)</td>
<td>English</td>
<td>Journey</td>
<td>Aboriginal and Torres Strait Islander Histories and Cultures Sustainability</td>
<td>Playground</td>
</tr>
</tbody>
</table>

### Unit Organisation

The unit is devised to introduce working in the outdoors environment. Going on a journey is a continual focus to encourage children to think about the places they have visited. The journey concept is used to introduce children to the local Indigenous story of the Black Cockatoo and to begin to make connections to land around them. Respect and Indigenous themes are central to the unit, which is partly delivered by the local Indigenous community.

### Unit Description/s

**English**

Activities focus on texts surrounding the theme of journeys. The development of oral language in outdoor play draws on the background knowledge of each of the students and builds further contextual knowledge. Written texts will be constructed from their outdoor learning experiences.

### Key Resources

**Focus Texts**


The story of the Black Cockatoo (as orally told by Jerringa Elder Aunty Grace Crossley).
A Journey in Place and Water (PART B)

### Part B (Weeks 5 – 10)

<table>
<thead>
<tr>
<th>Term</th>
<th>Curriculum Areas</th>
<th>Curriculum Titles</th>
<th>Cross Curricula</th>
<th>Outdoor Sites</th>
</tr>
</thead>
<tbody>
<tr>
<td>Term 2</td>
<td>Science</td>
<td>Water Works</td>
<td>Sustainability</td>
<td>Playground</td>
</tr>
<tr>
<td>(Weeks 5 – 10)</td>
<td>CAPA (Visual Arts)</td>
<td>Watching the Weather</td>
<td>Aboriginal and Torres Strait</td>
<td>Local Block</td>
</tr>
<tr>
<td></td>
<td>English</td>
<td>Water Journey</td>
<td>Islander Histories and Cultures</td>
<td></td>
</tr>
</tbody>
</table>

### Unit Organisation

The unit correlates the Science and Technology, Art and English components. Sustainability is emphasised by completing a water audit to discover where water is used in the school. The Indigenous community were consulted when devising the Indigenous weather components of this unit.

### Unit Description/s

#### Science

In this unit of work, the students investigate water. They observe places where water is found at school, home and in the local community. They classify these places according to whether water occurs naturally in this place or whether it is a place made by humans. The students observe different states in which water occurs eg clear, dirty, frozen etc. The students learn about the water cycle. They create a test to show how water evaporates. They will then design and make a device to collect and measure rainfall.

#### Visual Arts

This unit follows an inquiry process with the main questions: How do Indigenous people see, visualise and represent weather? How can I represent weather using environmental materials? The children use environmental materials to depict weather. These lessons are integrated into the oral language focus of the English unit.

#### English

The theme of a journey is continued over from the previous English unit, the emphasis now on the journey of water. Activities in this sequence focus on creating stories in manipulative activities. These stories are transferred into classroom writing experiences.

### Key Resources

#### Focus Texts


#### Teaching Reference Text

## Landscapes

<table>
<thead>
<tr>
<th>Term</th>
<th>Curriculum Areas</th>
<th>Curriculum Titles</th>
<th>Cross Curricula</th>
<th>Outdoor Sites</th>
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<tbody>
<tr>
<td>Term 3</td>
<td>English</td>
<td>Reading the Landscape</td>
<td>Sustainability</td>
<td>Playground</td>
</tr>
<tr>
<td>(Weeks 1 – 10)</td>
<td>HSIE</td>
<td>Wet and Dry Environments Artist Study: Andy Goldsworthy</td>
<td>Aboriginal and Torres Strait Islander Histories and Cultures</td>
<td>Local Block</td>
</tr>
<tr>
<td></td>
<td>CAPA (Visual Arts)</td>
<td>Ephemeral Art</td>
<td></td>
<td>Ben’s Walk</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Bundanon</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Booderee National Park</td>
</tr>
</tbody>
</table>

## Unit Organisation

The unit correlates the curriculum subjects of English, HSIE and Visual Arts. There are also secondary contributing outcomes covered from Science and Technology, Mathematics and PDHPE. The guiding principal throughout is looking deeply into environments and experiencing them first hand. Students are encouraged to explore local environments through direct experiences and to share this knowledge verbally and in written format. The students are encouraged to share personal experiences of environments they may have visited with their families through oral presentations to the class. After experiencing a variety of local environments the students compare and contrast these other parts of Australia. Picture book and information texts guide the exploration of other environments. Developing oral language about environments is central to the unit and it is the aim to transfer this knowledge to written work.

## Unit Description/s

### English

This unit of inquiry allows the students to develop their understanding of the key elements of a sentence by investigating the geographical world around them. There is a particular focus on using visual images to do this. The unit gives students opportunities to increase their geographical awareness by studying a range of information and narrative texts. The students compare local environments they read about in texts to the ones they visit in outdoor learning sessions. Nouns and adjectives used to describe these environments are emphasised throughout the unit.

### HSIE

This unit provides opportunities for students to explore life in wet and dry environments. It allows students to focus on people’s interactions with, and responsibilities towards, these environments. The majority of the unit is taught in outdoor learning sessions. There is a distinct focus on immersing the children in nature to complete open-ended activities. This is to allow children to complete in experiential activities that allow discovery and to allow the children to achieve their full potential.

### Visual Arts

The children are engaged throughout this unit using environmental materials to depict landscapes. There is a focus on the artist Andy Goldsworthy and appreciating his work. The unit follows an inquiry process to explore the questions: How are different landscapes represented through artworks? How can I represent landscapes using natural materials? There are additional art sessions based on observing the animals and environments that surrounds them.

## Key Resources

### Focus Texts


### Teaching Reference Text

# Schoolyard Safari

<table>
<thead>
<tr>
<th>Term</th>
<th>Curriculum Areas</th>
<th>Curriculum Titles</th>
<th>Cross Curricula</th>
<th>Outdoor Sites</th>
</tr>
</thead>
<tbody>
<tr>
<td>Term 4</td>
<td>English</td>
<td>Schoolyard Safari</td>
<td>Sustainability</td>
<td>Playground</td>
</tr>
<tr>
<td>(Weeks 1 – 10)</td>
<td>Science</td>
<td>Schoolyard Safari</td>
<td>Aboriginal and Torres Strait Islander Histories and</td>
<td>Local Block</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Cultures</td>
<td>Ben’s Walk</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Bundanon</td>
</tr>
</tbody>
</table>

## Unit Organisation

Schoolyard safari is an inquiry-based unit that focuses on explorations finding out about worms, ants and frogs. The Science and Technology unit guides the progression of activities. English texts were chosen to be factual and creative, with a focus on developing the children’s imaginations.

## Unit Description/s

**Science and Technology**

The inquiry unit is based on the Primary Connections unit “Schoolyard Safari”. The unit aims to allow children to engage, explore, explain, elaborate and evaluate creatures in their immediate environments. The unit provides hands-on experiences with worms, ants and frogs while also allowing introducing scientific knowledge.

**English**

The English component focuses on engaging students with fiction and non-fiction texts about ants and worms. Background knowledge of small creatures is first established by building a place for them to live in the playground. The Leaf Men text explores the concept of living in leaf litter and encourages the children to think what else might live there. Fostering imagination is encouraged as the children create stories about worms and ants. Information texts are referred to often to gain factual information and diagrams of creatures.

## Key Resources

**Focus Texts**


Factual texts about worms and ants (as found by individual students).

**Teaching Reference Text**

Appendix F: Blanket excursion note.

Blanket Excursion Note

Grade/Class: One

Excursion Purpose: Outdoor Learning program as described in other notes.

Venue: Various walking excursions within the local area.

Day and Date: Weekly for the remainder of the year. An information sheet will come out each week giving details to the next weeks session/s. An example of this is provided with this note.

Transport: Walking

Cost: Nil

Time of Departure: TBA Time of Return: TBA

What to Bring: Items will be identified on the weekly sheet.

Dress Requirements: Children will wear the uniform of the day when completing walking excursions. They may bring sneakers to wear if it is a full school uniform day. They will require wet weather gear and their school hat each week as we will be outdoors in all weathers.

Food Requirements: Will be identified on the weekly sheet. Please always keep rubbish to a minimum as the children will need to carry this out of locations.

Teachers Attending: Mrs Lane (Classroom Teacher) and Mrs Pyree (Indigenous Educator)

Parent Helpers: If you would like to be a parent helper please indicate on the weekly sheet.

Consent Form

As a parent/guardian of ____________________________ in class________ I give my consent for him/her to complete various walking excursions within the outdoor learning unit. I understand that it is my child’s responsibility to give me the weekly information sheet. This will come home each WEDNESDAY with the information for the following week listed. A copy will also be emailed to parents who subscribe to the newsletter system.

Signed _________________________________ Parent/Guardian

Emergency Contact on the Day: __________________________________

Medical Information (eg. Asthma, Allergy etc)

Please provide details as needed.
Appendix G: Weekly note.

Dear Parents/ Carers,

Next week ________ our outdoor learning day is __________ in the morning/ middle/ afternoon block.

We will be going to the ________ and learning about ________________________________________.

I need to bring:

<table>
<thead>
<tr>
<th>Essential</th>
<th>Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td>•School Uniform</td>
<td>•Rain pants</td>
</tr>
<tr>
<td>•Hat</td>
<td>•Extra layers of warm clothing or Old T’Shirt</td>
</tr>
<tr>
<td>•Jumper</td>
<td></td>
</tr>
<tr>
<td>•Raincoat</td>
<td></td>
</tr>
<tr>
<td>•Water</td>
<td></td>
</tr>
<tr>
<td>•Sunscreen</td>
<td></td>
</tr>
<tr>
<td>•Long pants</td>
<td></td>
</tr>
</tbody>
</table>

* Leave the essential items in my bag every day as you never know when we will end up outside. ANY walking excursion I can bring my sneakers to wear.
* Optional items have a tick if I need to bring them next week.

If you would like to come in and join us please send in the slip below.

Thank you
Teachers

I will be coming along to the outdoor learning session next week.

Thank you

_________________________ (Parent/ carers name)