

**Artistic Approaches to Environmental Education:
Developing Eco-art Education
in Elementary Classrooms**

Hilary J. Inwood

A Thesis

in the Department of

Art Education

Presented in Partial Fulfillment of the Requirements
For the Degree of Doctor of Philosophy in Art Education at
Concordia University
Montreal, Quebec, Canada

January, 2009

© Hilary J. Inwood, 2009



Library and Archives
Canada

Bibliothèque et
Archives Canada

Published Heritage
Branch

Direction du
Patrimoine de l'édition

395 Wellington Street
Ottawa ON K1A 0N4
Canada

395, rue Wellington
Ottawa ON K1A 0N4
Canada

Your file *Votre référence*
ISBN: 978-0-494-67360-7
Our file *Notre référence*
ISBN: 978-0-494-67360-7

NOTICE:

The author has granted a non-exclusive license allowing Library and Archives Canada to reproduce, publish, archive, preserve, conserve, communicate to the public by telecommunication or on the Internet, loan, distribute and sell theses worldwide, for commercial or non-commercial purposes, in microform, paper, electronic and/or any other formats.

The author retains copyright ownership and moral rights in this thesis. Neither the thesis nor substantial extracts from it may be printed or otherwise reproduced without the author's permission.

AVIS:

L'auteur a accordé une licence non exclusive permettant à la Bibliothèque et Archives Canada de reproduire, publier, archiver, sauvegarder, conserver, transmettre au public par télécommunication ou par l'Internet, prêter, distribuer et vendre des thèses partout dans le monde, à des fins commerciales ou autres, sur support microforme, papier, électronique et/ou autres formats.

L'auteur conserve la propriété du droit d'auteur et des droits moraux qui protègent cette thèse. Ni la thèse ni des extraits substantiels de celle-ci ne doivent être imprimés ou autrement reproduits sans son autorisation.

In compliance with the Canadian Privacy Act some supporting forms may have been removed from this thesis.

Conformément à la loi canadienne sur la protection de la vie privée, quelques formulaires secondaires ont été enlevés de cette thèse.

While these forms may be included in the document page count, their removal does not represent any loss of content from the thesis.

Bien que ces formulaires aient inclus dans la pagination, il n'y aura aucun contenu manquant.


Canada

ABSTRACT

Artistic Approaches to Environmental Education: Developing Eco-art Education in Elementary Classrooms

Hilary Inwood, Ph.D.
Concordia University, 2009

This dissertation explores curriculum development in eco-art education, an integration of art education and environmental education, as a means of increasing awareness of and engagement with learning about the environment. The creation of eco-art curricula in school settings was investigated by tracking how elementary teachers' knowledge and understanding of eco-art education resulted in learning experiences for their students.

Guided by the frameworks of collaborative action research and arts-informed research, a team of four elementary teachers and a university-based educator exchanged and generated practical and theoretical knowledge in order to plan, implement, observe and reflect on the development of eco-art curricula over the span of a school year. By drawing on the expertise and experience of the team members, the research aimed to acknowledge the central role teachers play in the design of innovative curricula and pedagogy and maximize the benefits inherent in school-university partnerships.

Data was collected in four schools over the course of nine months, and analyzed, interpreted and shared through a combination of thematic analysis, concept-mapping and

arts-informed research strategies. As the first dissertation to examine eco-art learning in a sustained way across multiple school sites, it offers evidence to demonstrate that eco-art curricula can take a multitude of forms and promote environmental learning in a variety of ways. The extensive database of elementary eco-art lessons created as part of the study highlights the roles of collaboration, place-based learning, systems-thinking and stewardship in eco-art learning, as well as the importance of using biodegradable materials and natural processes in making eco-art with children.

Presented as a combination of text and imagery, this dissertation also makes connections between the study and the author's ongoing work in community arts and guerilla art gardening as a means to elucidate the praxis of eco-art education. In this, eco-art education is shown to offer an innovative means for teachers to weave together learning about art and the environment in school-based settings.

ACKNOWLEDGEMENTS

Personal Appreciations

When I started this doctoral journey four years ago, I had anticipated focusing on the development of my skills as a researcher; what I got was so much more. Many people have helped me in this process, personally, intellectually, artistically and professionally, and I am so very happy to be able to acknowledge their contributions here. Their stories are now part of my story, and for that I will forever be indebted to each of them.

A deeply felt thanks must first go to the four teacher-researchers who so generously gave their time, creativity and energy to collaborating with me on this doctoral research project: Anne Lakoff, Karen Goodfellow, Dorie Preston and Astrid Tobin. Their stories are an integral part of this thesis, making it a much richer and engaging document. Their dedication to teaching and learning alongside their students has been inspirational for me (and many others), and models what excellence in education looks like in elementary settings. I consider myself lucky to have had them involved, and look forward to continued collaborations and friendships with them in the years to come.

I am also grateful for the supportive environment I have found in the Art Education department at Concordia University. I am thankful to my thesis supervisor, Paul Langdon, whose counsel was always perfectly aimed and well-timed; he was there when I needed his advice and yet gave me the independence I needed as a practicing educator to find my own way. His respect for the value of the professional experiences I brought into the doctoral program was made clear from the start, as was his

understanding of the challenges of commuting between Toronto and Montreal to continue my formal education. I greatly appreciate his insights on research and academia; both have resulted in this being a stronger dissertation.

My thanks also go to Lorrie Blair and Cathy Mullen, the other two members of my thesis committee, who simultaneously challenged and encouraged me to stretch as an educational researcher. These faculty members were wonderful role models for me, as each demonstrated a unique approach to balancing active research agendas, teaching responsibilities and family responsibilities. I also appreciated the collegiality extended to me by Richard Lachapelle, David Pariser, and Linda Szabad-Smyth, who were encouraging from the start and supportive of a variety of funding proposals, conference presentations and publication opportunities.

My deepest gratitude goes to Lillian Bramwell who also served as an ex-officio member of my thesis committee. In addition to being Professor Emeritus at the University of Western Ontario, Lillian also holds the title of the world's most supportive mother-in-law. She provided a high level of encouragement throughout my doctoral work, and acted as an informed reader and exacting editor for this dissertation. More importantly, she took care of my family for an entire month this past summer while I wrote the bulk of the thesis text. I'm not sure I would have ever finished if it hadn't been for her unique blend of skills in research, proof-reading, cheerleading and baby-sitting!

Thanks also go to my parents for planting the seeds that have taken root and grown during this dissertation. My mother, Janet Macquarrie, has always supported my artistic and creative efforts and beautifully modeled what a life full of creativity and life-long learning looks like. Her skills as an artist and master gardener continue to inspire

me to grow things in art studios and gardens alike. My father, Martin J. Inwood, instilled in me a love of nature and an ethic of environmental care throughout my childhood, as well as a rigorous approach to writing and research. I can only hope that one day my CV reads as well as his.

Special thanks also go to my sons, Benjamin and Alexander, who have motivated and encouraged me through the last four years. Along with our dog Terra, they were wonderful reminders that there is more to life than work. They curbed my Type A tendencies by making me laugh, giving me hugs, getting me outside and reminding me about the importance of play. This doctoral journey has been so much more enjoyable with all three of them in tow.

But I have left my most heart-felt thanks to the last, and that goes to my husband, Cameron Bramwell. Despite having lived through his mother's 'later in life' doctoral degree in his teen years, he has been *incredibly* supportive of his wife repeating the experience twenty-five years later. He has walked beside me throughout this journey, listening to my stories, sharing my victories, and softening my stumbles. He has put up with my long hours at the computer, on the Montreal train, or away at conferences, willingly taking on the roles of therapist, advisor, chauffeur and chief cook and bottle-washer in addition to the ones of husband, best friend and provider. His love and support, more than anyone's, has gotten me through this degree and dissertation, and for that I will always be grateful.

Institutional Appreciations

There are a number of institutions that also deserve credit for supporting my doctoral education and dissertation. My thanks are extended to Concordia University for its generous funding support throughout my graduate work via a Graduate Entrance Fellowship, Doctoral Thesis Completion Award and travel support for conferences. The Social Sciences and Humanities Research Council is also to be recognized for the provision of a SSHRC Doctoral Fellowship and further travel support. The support of the Toronto District School Board is also appreciated for granting permission for my research to be conducted in its schools. And a sincere thanks goes to Runnymede Jr. & Sr. Public School and its School Council, for not only allowing me to use their schoolyard as a giant art studio but also for providing support, funds and volunteers to make my dreams of guerilla art gardening projects a reality.

TABLE OF CONTENTS

List of Figures.....	xiii
List of Tables.....	xiv
List of Illustrations.....	xv
List of Artworks.....	xvii
Chapter 1: Creating a New Garden.....	1
Rationale and Frameworks.....	5
Significance.....	11
Structure.....	13
Chapter 2: Laying the Groundwork.....	18
Research Paradigm.....	18
Related Research.....	26
• Art Education.....	26
• Environmental Art.....	46
• Environmental Education	56
Chapter 3: Planting Methods.....	65
Frameworks.....	69
• Collaborative Action Research.....	69
• Arts-informed Research.....	77
Methods and Procedures.....	79
• Research Team.....	79

• Questions.....	83
• Data Collection.....	85
• Data Analysis/Interpretation.....	89
• Integrity.....	93
Chapter 4: Growing Eco-Art Education.....	96
Portraits of Teacher-Researchers.....	97
• Anne Lakoff.....	97
• Astrid Tobin.....	98
• Karen Goodfellow.....	99
• Dorie Preston.....	101
Starting Points.....	104
• Expectations.....	104
• Connecting Past with Present.....	106
• Definitions.....	108
Developing Eco-Art Curriculum.....	117
• Anne Lakoff.....	117
• Astrid Tobin.....	127
• Karen Goodfellow.....	137
• Dorie Preston.....	146
The Harvest.....	160

Chapter 5: Bringing in the Harvest.....	163
Finding Patterns in the Harvest.....	163
• Inspirations.....	166
• Links to Environmental Learning.....	173
• Defining Eco-Art Education.....	178
• Pedagogy.....	181
Reflecting on the Growing Season.....	195
• Advantages of Eco-art Education.....	196
• Challenges of and Barriers to Eco-art Education.....	200
• Effects of the Collaborative Action Research Framework....	205
Reflecting on the Harvest.....	207
• Insights in Curriculum Development in Eco-art Education...	208
• Insights into Collaborative Action Research.....	219
• Insights into Arts-Informed Research.....	222
Chapter 6: Planning for Next Season.....	225
Looking Back on the Harvest.....	225
• Key Questions and their Outcomes.....	228
Contribution of the Dissertation.....	232
• Limits of the Contribution.....	234
• Integrity of the Dissertation.....	236
Implications of the Research.....	239
• Implications for Teaching and Learning in Eco-art Education	239
• Implications for the Teacher-Researchers.....	240

• Personal Implications.....	242
• A New Set of Questions.....	243
Planning for Next Growing Season.....	246
• Promoting Ecological Literacy and Eco-art Education.....	247
• Creating Resources for Eco-art Education.....	248
• Teaching & Learning with Elementary Students and Teachers	248
• Continuing Creative Explorations in Eco-art.....	249
Conclusion.....	250
References.....	254
Appendices.....	268

LIST OF FIGURES

Figure 1: Kemmis and McTaggart (2003) Action Research Spiral.....	74
Figure 2: Key questions of this dissertation.....	84
Figure 3: Overview of data collection methods.....	88

LIST OF TABLES

Table 1: Chart of Anne's Eco-Art Curricula.....	125
Table 2: Chart of Astrid's Eco-Art Curricula.....	130
Table 3: Chart of Karen's Eco-Art Curricula.....	140-141
Table 4: Chart of Dorie's Eco-Art Curricula.....	154-155
Table 5: Data Collection in the Study.....	272

LIST OF ILLUSTRATIONS

1 - Grapevine 'Basket' Fence around Oak Sapling, Runnymede PS.....	120
2 - Grapevine 'Basket' Fence around Medicine Wheel Garden, Runnymede PS	120
3 - God's Eyes Artistic Garden, Runnymede PS.....	120
4 - Leaf Drawings, Runnymede PS.....	120
5 - Underground/Aboveground Tree Drawings, Runnymede PS	123
6 - Leaf Batiks, Runnymede PS.....	123
7 - Ice sculpture (detail), Runnymede PS.....	123
8 - Ice sculpture, Runnymede PS.....	123
9 - Sculptural Book: Portrait of Anne Lakoff.....	126
10 - Sculptural Book: Portrait of Anne Lakoff (detail).....	126
11 - Seed drawing, Kew Beach Jr. PS.....	129
12 - Preparatory sketch from the mural project, Kew Beach Jr. PS	129
13 - Preparatory sketch from the mural project, Kew Beach Jr. PS.....	129
14 - Mural in progress, Kew Beach Jr. PS.....	129
15 - Completed mural, Kew Beach Jr. PS.....	133
16 - Completed mural, Kew Beach Jr. PS (detail).....	133
17 - Completed mural, Kew Beach Jr. PS (detail).....	133
18 - Sculptural Book: Portrait of Astrid Tobin.....	136
19 - Sculptural Book: Portrait of Astrid Tobin.....	136
20 - Urban/Rural Drum Collages, Annette PS.....	138
21 - Natural Relief Sculpture, Annette PS.....	138
22 - Natural Relief Sculpture, Annette PS.....	138

23 - Woven Wood Sculpture, Annette PS.....	138
24 - Woven Wood Sculpture, Annette PS.....	138
25 - Sculptural Book: Portrait of Karen Goodfellow.....	145
26 - Sculptural Book: Portrait of Karen Goodfellow.....	145
27 - Take 30 Installation #1, West Rouge PS.....	148
28 - Take 30 Installation #2, West Rouge PS.....	148
29 - Suncatcher Ice Sculptures, West Rouge PS.....	148
30 - Edible art, West Rouge PS.....	148
31 - Handmade Paper Display, West Rouge PS.....	151
32 - O'Keefe inspired Flower Painting, West Rouge PS.....	151
33 - Flower Still Life Painting, West Rouge PS.....	151
34 - Flower Banner #1, West Rouge PS.....	153
35 - Flower Banner #2, West Rouge PS.....	153
36 - Ancient Civilization Garden Stake #1, West Rouge PS.....	153
37 - Ancient Civilization Garden Stake #2, West Rouge PS.....	153
38 - Eco-art exhibit signage, West Rouge PS.....	156
39 - Eco-art exhibit visitors, West Rouge PS.....	156
40 - Eco-art exhibit, general view, West Rouge PS.....	156
41- Sculptural Book: Portrait of Dorie Preston.....	159
42 - Sculptural Book: Portrait of Dorie Preston.....	159

LIST OF ARTWORKS

Tracing my Roots

- Vignette 1..... 3-4
- Vignette 2..... 9-10
- Vignette 3..... 15-16
- Vignette 4..... 24-25
- Vignette 5..... 53-54
- Vignette 6..... 63-64
- Vignette 7..... 67-68
- Vignette 8..... 75-76
- Vignette 9..... 94-95
- Vignette 10..... 102-103
- Vignette 11..... 115-116
- Vignette 12..... 161-162
- Vignette 13..... 164-165
- Vignette 14..... 182-183
- Vignette 15..... 252-253

Sculptural Bookworks

- Portrait of Anne Lakoff..... 126
- Portrait of Astrid Tobin..... 136
- Portrait of Karen Goodfellow..... 145
- Portrait of Dorie Preston..... 159

CHAPTER 1: CREATING A NEW GARDEN

*Here's the paradox: if the scientists are right, we're living through the biggest thing that's happened since human civilization emerged. One species, ours, has by itself in the course of a couple of generations managed to powerfully raise the temperature of an entire planet, to knock its most basic systems out of kilter. But oddly, though we know about it, we don't **know** about it. It hasn't registered in our gut; it isn't part of our culture. Where are the books? The poems? The plays? The goddamn operas?*
(McKibben, 2005, n.p.)

In recent years I have been on a professional and personal journey exploring the role of art education in environmental learning. Based on a desire to find a more socially relevant role for art education, I have been investigating how the visual arts and art education can be used to raise awareness of and engagement with environmental concepts and issues. Through leading workshops, teaching courses and writing articles, I have come to think of my research in this area as a form of guerilla gardening.¹ Used as a means of planting conceptual seeds for the greening of art education, this type of activism draws me out of the confines of my studio classroom to work the soil in a variety of fertile educational gardens. It is in these places where I cultivate ideas with students, school teachers, parents and colleagues about the intersections of nature and culture, and promote their involvement in developing a more sustainable means of living on this planet.

This metaphorical form of gardening has proven to be rewarding work, allowing me to grow a rich set of images and texts that inspire my evolving sense of self as

¹ Guerilla gardening is a recent social movement that encourages gardeners to adopt abandoned corners, containers and spaces in urban environments as gardening plots. It promotes gardening as a way of deepening our relationships with the natural and built worlds we inhabit. Its emphases on organic gardening methods, place-based involvement and aesthetic improvement have positioned it as an intriguing means of growing environmental awareness in community settings. For an in-depth look, refer to the Public Space website on guerilla gardening located at [<http://www.publicspace.ca/gardeners.htm>].

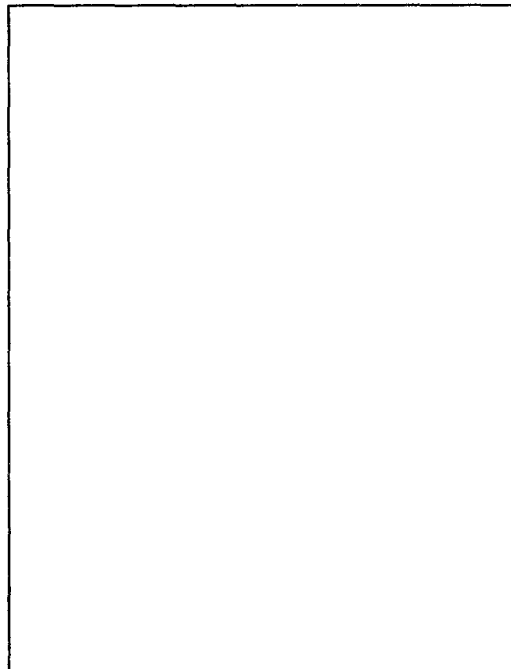
educator, researcher, environmentalist and artist. It has been a generative place to explore, play, learn and grow, individually and with others. Doctoral study has become an important part of this by encouraging me to dig deeper, to prepare the soil for a new set of plantings that will help shape the evolving landscape of art education. This landscape has shifted significantly over the last few decades, following the route set by the philosophical developments of postmodernism, and reflecting a growing trend on the part of art educators to move beyond the insularity of modernism and engage art education more fully with the world around it. Proof of this growing engagement, while found in many contemporary approaches to art education, is found in the emerging field known as eco-art education.

Also referred to as environmental art education, eco-art education integrates art education with environmental education as a means of developing awareness of and engagement with environmental concepts and issues such as biodiversity, interdependence, conservation, restoration and sustainability. In this, eco-art education promises an innovative approach to environmental education and ecological literacy, one that balances the traditional roots of these disciplines (found in the cognitive, positivist approaches of science education) with the more creative, affective and sensory approaches of art education.

Eco-art education has been at the centre of this doctoral project. Over the past two years, I have investigated the process of creating eco-art curricula in four elementary schools to track how teachers' knowledge and understanding of eco-art education grow into eco-art lessons and programs for their students. I understood from the outset that developing new curricular initiatives, just like propagating new plants, would be a

*"Armed with trowels, seeds, and vision,
the idea is to garden everywhere. Anywhere."*

Primal Seeds website (2006).



Gardening is all about getting your hands dirty, and not surprisingly, so is art-making. I've been a gardener and an artist since I was a teenager, though not always consistently, and not always in traditional ways. I have always loved growing things, be it a plant or an artwork, and have made both a manifestation of my creativity over the last twenty five years. I get as much satisfaction and joy from growing colour in my flowerbeds as I do mixing them on a paint palette – both result in something tangible, and they never turn out exactly the way that I had planned – I like the element of surprise. But I had always seen gardening as somehow separate from art-making, until I started guerilla art gardening.



complex undertaking requiring a balance of meaningful curriculum, supportive pedagogy, and most importantly, engaged educators and learners. I also appreciated that in elementary schools, teachers are central to this process due to their integral roles in the construction and delivery of curriculum and the engagement of learners; teachers are key if changes in attitude and behaviour towards the environment are to be more strongly rooted in the coming generations. Therefore this thesis examined four teachers' approaches to the design and delivery of eco-art education in elementary school settings, as well as the benefits and challenges they faced in implementing this curriculum in their classrooms.

Rationale and Frameworks

This dissertation has been grounded in the core belief that art education can be used to foster ecological literacy² and that developing this form of literacy in children is considered by many educators to be essential to the continued existence of human life on this planet (Orr, 1992; Thomashow, 1995; Smith & Williams, 1999). In the past, ecological literacy has fallen under the guise of environmental education, which has been developed and promoted primarily by science educators. While environmental education

² Capra (1999) defines an ecologically literate person as one who understands the basic principles of ecology and is able to embody them in the daily life of human communities. Puk (2002) builds on this by stating that an "ecologically literate person is one who is a *responsible, lifelong learner* who strives to improve the human condition and the environment within the context of self, human groups, the biosphere and the ecosphere. This person will find purpose and meaning for life by continuously aspiring to higher levels of balanced growth, in his or her cognitive, affective, psychomotor, reflective, intuitive, aesthetic, social, creative and spiritual capabilities" (p. 4). The Toronto District School Board (2006) defines being ecologically literate as understanding the basic principles of ecology, which include learning about and understanding how nature works, how our society and economy ("human systems") depend on clean air water, and soil and other resources (products of "natural systems"), and how human interactions with the environment can have both positive and negative impacts on people and the natural world.

has made some headway in the past, some researchers in that field (Leeming, Dwyer, Porter & Cobern, 1993) freely admit that this progress has been limited. There has been more success in inducing learners' attitudinal shifts than in making changes to their behaviours that lead to living more lightly on the earth.

Art education offers a dynamic way to increase the power and relevancy of environmental education by providing an alternative means for furthering learners' ecological literacy. This assertion has acknowledged experts in environmental education as supporters; for example, Orr (1992) argued that ecological literacy would not be instilled in children unless it is integrated into a wide variety of subject areas including the arts. The need for more arts-based, affective approaches to environmental education has been echoed by many others (Graff, 1990; Adams, 1991; Lindholdt, 1999; Gurevitz, 2000; McGibben, 2005; Graham, 2007). I share with these authors the belief that the values-based, subjective orientation of affective learning typically found in art education not only helps change learners' attitudes about environmental concerns but also offers the possibility of altering their behaviour towards the environment. By offering the means to feed learners' minds as well as touch their souls, the arts have the potential to become powerful allies in fostering ecological literacy. This thinking has been endorsed recently by the policymakers in the Ontario government: the Ministry of Education has called for the cross-curricular implementation of environmental education in every subject at every grade level, recognizing the need to infuse it through every area of study (Working Group on Environmental Education, 2007).

Prior to this dissertation, little substantial curricula development had been done in creating and implementing eco-art education in elementary classrooms. In-depth

research was required into the practice of eco-art education, highlighting how the theoretical groundwork that had been done (Jagodinski, 1987; Gablik, 1991; Blandy & Hoffman, 1993; Garoian, 1998) would merge with a compatible pedagogy to develop into appropriate classroom practice. This dissertation aimed to initiate such an undertaking by bringing together four elementary teachers with a university-based educator (myself) to investigate the experience of developing working models of eco-art education. In this, the teachers were positioned as teacher-researchers, and helped form the research team that provided insight into the design and delivery of curriculum and pedagogy in eco-art learning, as well as its benefits and challenges.

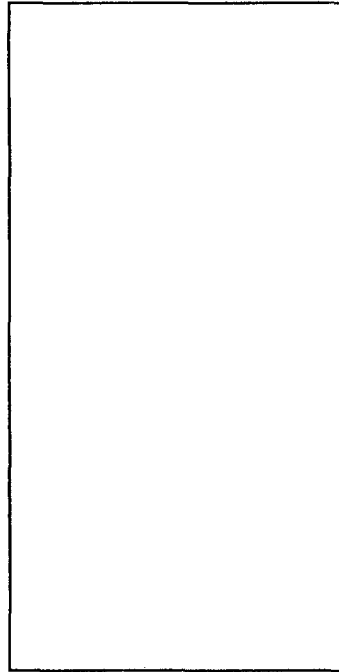
As the main framework that guided the thesis research, collaborative action research provided an intriguing pathway into the development of eco-art education by challenging dominant paradigms of curriculum development. It provided the means for a team-based approach that aimed for cooperation and co-learning in curriculum development, and allowed for multiple voices to contribute to the creation of innovative models of eco-art education. In this it ran counter to more traditional approaches of curriculum development, which typically promote the formal and theoretical knowledge of academics over the tacit knowledge and pedagogical expertise of practicing teachers. Collaborative action research offered a unique opportunity for the team to generate and exchange practical and theoretical expertise in order to plan, implement, observe and reflect on eco-art curricula over the span of a school year. It endeavoured to honour the central role teachers play in the design of innovative curricula and pedagogy, and acknowledged the benefits inherent in school-university partnerships.

As part of this process, I acted as the catalyst for the research by bringing together four elementary teacher-researchers to lend their classroom expertise to the project. By providing a background in eco-art education and access to readings and resources, I facilitated the teacher-researchers' growing understanding of the term eco-art education, and encouraged them to apply their definitions to the design of appropriate lessons or strategies for their eco-art curricula. It was the teacher-researchers who ensured that the development of eco-art curricula was firmly grounded in the realities of classroom life, while I assumed the duties of data collection, analysis and interpretation as the lead researcher.

As part of the collaborative action research framework, the teacher-researchers were involved in the initial forms of analysis, using these to inform their own iterations of the action research spiral (discussed in Chapter Three). In the latter stages of the dissertation, I used a combination of thematic analysis and concept-mapping in the interpretation of the data. Strategies from arts-informed research were also utilized at this stage, providing an alternate means of analyzing, interpreting and sharing aspects of the data. Using the framework of arts-informed research as a secondary approach helped me to deepen my ways of knowing about the curriculum development process in eco-art education, following the advice of Heron and Reason (2001):

...knowing will be more valid if these four ways of knowing are congruent with each other: if our knowing is grounded in our experience, expressed through our stories and images, understood through theories which make sense to us, and expressed in worthwhile action in our lives (p.79).

In my mind, guerilla art gardening is simply another manifestation of my creative energies as an artist. I'm not a conventional guerilla gardener (if indeed there is such a thing), nor do I take a traditional approach to art-making, but the parallels between the two make it an apt metaphor for what I do.



Guerilla gardening is a relatively recent social movement that encourages gardeners to adopt abandoned corners, containers and spaces in urban environments as gardening plots. They do this to make these spaces more aesthetically pleasing and to inject a little more nature into city life. Comradery and collaboration are often parts of the project, as guerilla gardening is frequently done in groups as a way to build community connections. But there is also a transgressive element to this practice; typically guerilla gardeners don't ask permission to re-purpose these untended spots, and often do so under the cover of darkness. This tactic is done to avoid the sea of red tape that would be needed to adopt these spots with the official permission of local councils. Guerilla gardeners (like many artists) are not fond of bureaucratic road-blocks, preferring instead to do what is needed to improve their environment, regardless of official sanction or support.



These four ways of knowing have been exemplified in this thesis. As a means of expressing my story and its connections to the work of the dissertation, a personal narrative has been woven in pictures and words throughout the more formal text of the chapters in this dissertation. Manifesting the main metaphor with which I have conceived of my work in this thesis, the narrative describes my own involvement in guerilla *art* gardening at a local school over a five-year period, culminating in the development of a series of elementary eco-art lessons delivered simultaneously to those of the rest of the team. Presented as a combination of text and imagery, the story traces the links between my research activities as a community artist/educator as a means of shedding light on the creative framework of the thesis. A second arts-informed component is found in the creation of four sculptural books (illustrated in Chapter Four). These books complement the text-based portraits of the teacher-researchers in this chapter, offering a visual and tactile means of analysis and an alternate mode of summarizing their contributions.

Significance

In exploring and answering its key questions about curriculum development in eco-art education, this dissertation has aimed to make a distinctive contribution to the knowledge and discourse of eco-art education. As the first thesis to examine eco-art learning in a sustained way across four school sites, it has resulted in the creation of an extensive database of elementary eco-art lessons. This database demonstrates that eco-art lessons can range in complexity and depth, utilize a wide array of materials and techniques, and support a variety of environmental principles and themes.

By facilitating, examining and documenting teachers' experiences with the design and delivery of these lessons, the thesis has led to a number of insights into the curriculum development process, the relationship of eco-art learning to art education and environmental education. It has demonstrated that the advantages of eco-art education far outweigh its challenges, and that few barriers exist to its implementation.

The creation of a body of elementary-level model curricular activities has been important in its support of the theoretical suppositions about eco-art education made over the past fifteen years by scholars in art education (outlined in Chapter Two). The roles of collaboration, postmodern approaches, place-based learning, and stewardship in eco-art learning have been demonstrated, as have the use of biodegradable materials and natural processes in making art with children. Equally important, the structure and pedagogy of eco-art lessons have proved similar enough to general art lessons that the elementary teachers could undertake eco-art learning with their classes without inservice training³ in art education.

This dissertation has also gathered evidence to show that eco-art lessons can support environmental learning in a variety of ways: through modeling the 3Rs⁴ and other environmentally-friendly practices; by placing an emphasis on environmental content (in addition to the more traditional artistic form and technique); by focusing on the specifics of place; and by framing eco-art lessons to highlight their connection to environmental concepts and issues. The use of pedagogical strategies in eco-art

³ Inservice training is the term used to describe professional development for practicing teachers, typically done on release time from their classroom duties, after school, on weekends or on school breaks. Preservice training designates learning done prior to starting their teaching duties, typically part of a Bachelor of Education degree.

⁴ The 3Rs is an acronym for 'reducing, reusing and recycling' which have for many years been promoted as key strategies for more sustainable approaches to living.

programs, such as systems-thinking, cooperative learning and place-based learning, have also ensured a close connection with environmental education.

The framework of collaborative action research has proven to be an appropriate means for initiating and developing eco-art curricula. Yet it may also prove to be one of the limitations of the thesis in some readers' minds, as its qualitative foundations and small sample size are far from the quantitative and experimental modes of research commonly found in environmental education circles. These foundations make traditional notions of rigor (such as reliability, validity and generalizability) of little use in assessing the worth of this thesis; instead the integrity of this thesis has used criteria applicable to qualitative forms of research generally, and action research more specifically (as outlined in Chapter Three). Art educators working from a modernist mindset may also find fault, not for the qualitative basis of the thesis but for its support of a reconstructionist approach to postmodernism (Gablik, 1991). This thesis has unapologetically supported the notion of using art as a means of social change, and has worked towards achieving this goal through its content and methods.

Structure

This first chapter provides an introduction to the design and results of this thesis. The second chapter traces its personal and theoretical roots; I describe my own research paradigm as a way to share my philosophical orientation towards the creation of knowledge, learning and understanding, and then summarize and critique the literature and artworks that have influenced my own development in the field of eco-art education.

As interdisciplinary research, this is informed by the fields of art education, environmental art and environmental education.

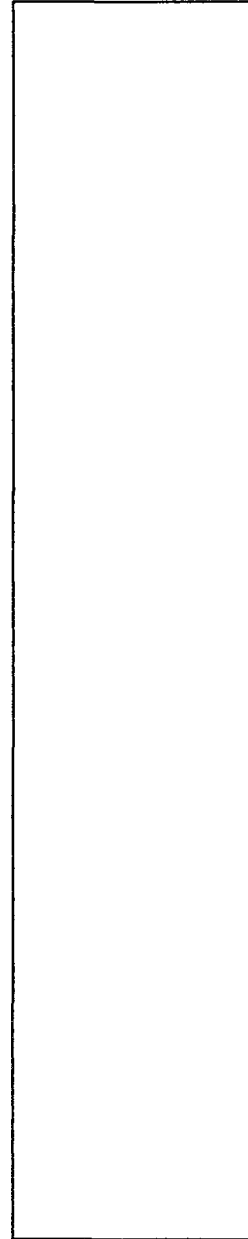
The third chapter describes the frameworks of collaborative action research and arts-informed research upon which the thesis was built. It makes clear the rationale for choosing these approaches, as well as explaining the methods and procedures utilized in the course of the dissertation. The structure of the research team is described, as are the challenges of positionality in a collaborative thesis. A set of criteria for establishing its integrity is also provided, offering the reader a means of assessing its outcomes beyond those used in traditional forms of research.

The fourth chapter offers textual and visual portraits of the teacher-researchers involved in the dissertation, and provides a basis for comparing their starting points in terms of their expectations and their definitions of eco-art education. This sets the stage for the summary of the eco-art lessons and curricula they designed and implemented with their classes over the nine months of the data collection phase.

Chapter Five identifies the patterns of similarities and differences in the teacher-researchers' lessons, highlighting the inspirations that initiated their curriculum development, the links made to environmental learning, the relation between their definitions of eco-art education and their curriculum, and the pedagogy used to implement it. This chapter also tracks the advantages, challenges and barriers of eco-art education, as well as the effects of the collaborative action research framework. It concludes by reflecting on the dissertation as a whole, describing the outcomes and insights drawn from the interpretation of the data.

For the last seven years, my art practice has shared many of the same characteristics as guerilla gardening – it has aimed towards improving natural and built spaces, growing new ideas, building community, and raising awareness of the environment. Like many guerilla gardeners, I am not much of a traditionalist as an artist; while I do paint and draw, I took inspiration early on from Joseph Beuys' concept of social sculpture and saw any type of creative activity as a worthy enterprise. In my early years as a parent of two young boys, this led me away from traditional art-making towards interior design, sewing projects and birthday cake sculptures; while these projects didn't win any art awards, it did bring pleasure to my family, and that was enough.

But since the horrendous events of 9/11 in 2001, I have felt a stronger need to link my desire for 'purposeful creativity' (Lankford, 1997) to social action; making pretty pictures or products just wasn't enough anymore. My deeply held beliefs about environmental issues proved to be my own personal tipping point; so began my exploration of how best to link my interest in art and the environment together, through the practice of guerilla art gardening.





The final chapter summarizes the thesis and its contribution to the fields of eco-art education, art education and environmental education. It posits its significance in all of these fields, as well as its limitations. Its implications are also traced by describing its potential effects on teaching practice, and its effects on each of the team members, myself included. As a fitting conclusion for an action research project, the concluding chapter identifies the multitude of questions raised by this thesis, and lays out a plan for future actions in sharing its results and in furthering the exploration of eco-art education.

Through the integration of the formal text, a personal narrative, children's artwork and the sculptural books, this dissertation demonstrates my desire for balance, between the personal and the academic, the individual and collective, and the pragmatic and the aesthetic. By grounding this thesis in my experiences as an educator, researcher, and artist, by translating my beliefs in the arts and the environment into effective action in classrooms, and by using arts-informed research strategies to share the stories of this team process, I have not only demonstrated how I have been influenced by the existing theories in eco-art education, but also how I have begun to let my own theories take root and begin to grow.

CHAPTER 2: LAYING THE GROUNDWORK

The arts can release imagination to open new perspectives, to identify alternatives. The vistas that might open, the connections that might be made, are experiential phenomena; our encounters with the world become newly informed. When they do, they offer new lenses through which to look out at and interpret the educative acts that keep human beings and their cultures alive.

(Greene, 1995, p. 18)

Research Paradigm

My involvement in art education has grown over the course of thirty years. Beginning intuitively as an enthusiastic learner in the visual arts as a young child, and continuing as an art educator in my adult years, much of my life has centred on making, looking at, talking and reading about art in one form or another. One could argue that I have spent more time learning about and through art than any other activity in my life. In this, the visual arts have been my creative garden where I have worked, played, dreamed and grown. Like most gardens, some things I have planted have flourished and others have not; nonetheless I have derived a great deal of satisfaction simply from the process of getting my hands dirty and watching what takes root.

My professional activities as an art educator have not resulted in a tidy, well-ordered garden however; my career has grown less like a Zen garden and more like an organic English garden that has spilled beyond its borders. Previous to becoming a university lecturer, I worked as an educational consultant and itinerant art teacher for over a decade, taking on the roles of teaching, writing, administrating, and researching on request, and enjoying the fast pace of projects and their concrete results. I conceived of myself as a generalist, an art educator with knowledge in a variety of related areas. And

although I took on research projects for clients on occasion, I did not consider myself to be a researcher, which I perceived to be a specialized profession.

In retrospect, I realize that I was in fact engaged in a variety of forms of research throughout my years as a consultant, from action research in classrooms to visitor surveys and interviews in museums. More importantly, I now appreciate that my approaches to and assumptions about research were aligned with those accepted in qualitative research circles. Schram (2003) summarizes the features of qualitative research as a desire to engage in “direct personal experiences in real-world settings” (p. 7), an acknowledgement of the “interactive and intersubjective nature of constructing knowledge” (p. 7), a “sensitivity to context” (p. 8), an “attentiveness to particulars” (p. 9) and perhaps most importantly, engaging in “an active process of interpretation” (p. 9). I had not taken on these assumptions in any conscious way, and yet they had become an integral part of my daily practice as an educator and emerging researcher. Qualitative research methods presented a more appropriate means for me to better understand the subjectivity and complexity inherent in the arts and arts education. I am not alone in this regard; Sullivan’s (2005) text discusses at length the intrinsic fit between qualitative research and the visual arts.

My approach to qualitative inquiry is through a postmodern lens. I initially learned about postmodern theory through exposure to contemporary art, and through this have internalized certain postmodern, post-structuralist sensibilities, including questioning Modernism’s faith in the grand narratives, its search for universalism and (one) truth, and its belief in the power of reason, rationality, and objectivity. Instead I have come to believe in the idea of multiple, socially-constructed realities, in the role of

language in determining and understanding these realities, and in the power of individual subjectivity and interpretations to reflect the complexity of our lived experiences. In this I share Kemmis & McTaggart's (2003) belief that " 'truth' is always and only provisional ...is always fallible...is always shaped by particular views and material-social-historical circumstances, and can be approached only intersubjectively" (p. 357-358).

These ideas have influenced my practice as an art educator. Despite a modernist-infused undergraduate education, I have outgrown formalism and am more interested in the historical and cultural context of artworks and the role of gender, race, class and sexuality in the making and critiquing of art. I support a holistic vision of art education, one that moves beyond the privileging of art production to include the interpretation of the visual arts and material culture as an integral part of the creative process. However in this emphasis on interpretation I am uncomfortable with the authority society confers on certain roles (like art historians, critics or curators) to dictate interpretative standards and content; instead I prefer to promote the power of individual viewers to construct, deconstruct and/or interpret artworks from their own unique perspectives.

I am certainly not alone in shifting to a postmodern approach to art education; Neperud (1995a) discusses this shift in thinking at length, as have others (Efland, Stuhr & Freedman, 1996; Clark, 1996; and Haynes, 1995, to name only a few). Certainly one of the most influential writers in my own development in this regard has been Gablik (1991), whose distinction between *deconstructive* and *reconstructive* views of postmodernism has been instrumental in the integration of my environmental beliefs into my vision of the visual arts and art education. Rather than focusing on a postmodernist analysis of the shortcomings of Modernism, (what she calls a *deconstructive* approach)

Gablik advocates a *reconstructive* view, “to make the transition from Eurocentric, patriarchal thinking and the ‘dominator’ model of culture toward an aesthetics of interconnectedness, social responsibility and ecological attunement” (p. 22). By better connecting art to the realities of daily living, she argues that art can be used effectively as an agent of social change, one that can capture the public’s attention through its creative, innovative approaches to society’s problems. Gablik’s book has been a pivotal text as it has given me the impetus to integrate my postmodern ideas about art and the nature of lived experience with my physical, emotional and spiritual connections to the environment.

My beliefs about environmentalism have also become central to my ontology in recent years. Having developed an interest in and love for natural and built environments over time, I understand that we are connected inextricably to our environment, as we are to all aspects of our world. (I use the term environment in a broad sense, to refer to the natural, built and cultural spaces and places in which we exist). Over time this keen interest has grown into a body of knowledge and experience with environmental issues, along with a strong desire to ensure that future generations better understand how to tread more lightly on the earth. Yet it wasn’t until ten years ago that I discovered a way to integrate my interests in the environment with my love for the arts. Writings by Gablik (1991, 1995), Matilsky (1992), Thomashow (1995) and Beardsley (1998) helped me to understand that there are many in the arts who share my environmental beliefs, and that there are valuable roles for artists and art educators to play in not only raising public awareness about these issues but also in devising creative solutions to environmental problems. As I started to research in this area I found the work of environmental artists

such as Joseph Beuys, Mierle Laderman-Ukeles, Mel Chin, Andy Goldsworthy, and Helen and Newton Harrison intriguing and inspiring; more importantly, they modeled ways for me to integrate my interest in the environment into my roles of educator, researcher and artist.

My commitment to environmentalism and understandings about the processes of knowing are of equal importance in how I proceed as an educator and researcher. My approach to understanding an area of inquiry, like Neilson (1998), is not only “what is going here?” (p. 38), but also “what can I, as an individual or with others, begin to do about it?” (p. 147). This need, to explore through research *and* to act on research findings, aligns me with a critical epistemological lens, as summarized by Schram (2003). I need to see the applicability of research in order to appreciate its value, moving beyond the tasks of description and analysis into the realm of transformation. As Schram writes, this lens “moves researchers beyond a concern for describing what is and pushes them and others toward the question of what could be” (p. 34). In this I put my values and biases as a researcher into play, attempting to more closely link theory with practice as a means to help advocate for and instigate social change.

In acknowledging my research stance, I have also found resonance with some aspects of the epistemological stance of philosophical hermeneutics, as described by Schwandt (2000). He positions understanding as interpretation, which is “a basic structure of our life experience” (p. 194). In this, understanding is “participative, conversational, and dialogic,” (p. 195) and always bound up with language; therefore, discussions between researchers and participants (or more accurately, co-researchers) create meaning and understanding, rather than simply attempt to reproduce it. My ideas

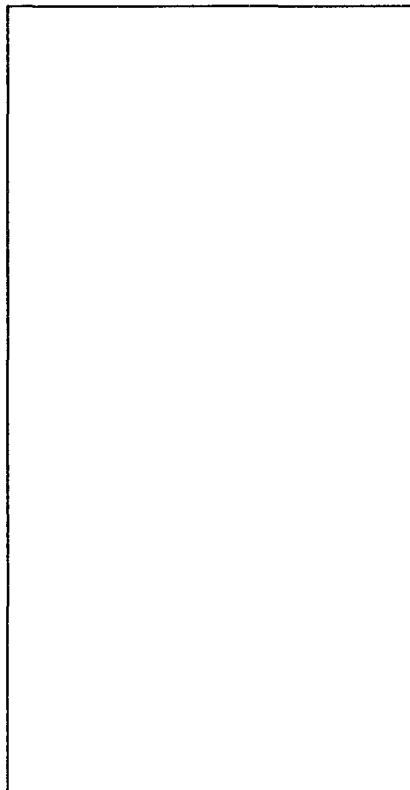
about ways of knowing in the arts and research align well with this stance: Schwandt posits that there is never one ‘correct’ interpretation in philosophical hermeneutics, but instead “meaning is negotiated mutually in the act of interpretation; it is not simply discovered” (p. 195). He notes that the biases we bring to the experience of interpreting do not need to be disregarded; instead understanding/ interpreting “requires the engagement of one’s biases” along with an awareness that we may need to “alter those [biases] that disable our efforts to understand others, and ourselves” (p. 195).

Lawrence-Lightfoot and Davis’ (1997) analogy of research may prove useful in helping me to visualize these epistemological influences. They see research less as a form of excavation and more as a “rich ecological mapping” (p. 139). In the past I have conceived of research as excavation, as a means of unearthing truths about the nature of knowing and learning; this metaphor, rife with invasive connotations, involves unearthing existing knowledge through destructive means. Instead I prefer the metaphor of mapping, one I have used in the past to conceptualize my own art-making, as its connotations are more exploratory, less damaging, and always open to revisions as one’s knowledge of a territory expands.

These influences led me to understand that my doctoral research would be firmly rooted in an exploratory means of inquiry, one with strong ties to qualitative research methods. Like the act of guerilla gardening, I wanted to move it outside the boundaries of a traditional approach and make my research practice participatory, dialogic, creative and transformative. I aimed to create an environment that encouraged the contributions of practicing teachers to eco-art education and made space for all of us, as a team, to interact, think critically, plant ideas with students (and each other) and watch those ideas grow.

One of my main methods of learning has always been through books. I have been an avid reader since I was little, and this has continued throughout my adult life. As a quick reader who absorbs information readily through text, I have found success in traditional approaches to learning in school and university settings – surely no surprise to those who know me that I returned to do a doctorate in mid-life. But my favourite books are those with pictures, which led me down the garden path to the study of art and art history. Art catalogues, monographs, magazines, even children's picture books – all have fed my reading habit over the years for text and imagery. This has surfaced in my approach to art-making over the past five years too, as I have been exploring book-making as a way to combine and manifest my love for words and images. For most things in my life, I turn to a book as a starting point for learning. But in two of my favourite activities – gardening and art-making – I have resisted this pattern, and have instead chosen to learn through these activities provide a side of my brain and achieve a sense of flow through an integration affect. Perhaps this is gardening and art-naturally come together to learn about the without any book to

doing. I think
respite for the left
allow me to
with the right
of action and
why guerilla
making have
for me as a way
environment,
guide the way.



chosen to learn through
these activities provide a
side of my brain and
achieve a sense of flow
through an integration
affect. Perhaps this is
gardening and art-
naturally come together
to learn about the
without any book to



Related Research

Eco-art education is an interdisciplinary endeavour, one that incorporates knowledge, pedagogy and narrative from the visual arts, art education and environmental education. In this it requires an awareness and integration of ideas, theories and concepts from all of these fields. To this end, the following is a summary of the key writers, artists and theorists who have been influential in my conception of eco-art education.

Art Education

Digging in the garden of eco-art education began over nine years ago for me, though the early work in this area began over three decades. One of the first references connecting art education with the environment was made by McFee and Degge (1977). They positioned art in terms of environmental design, exploring how people use space in schools and urban communities and broadly tracing the evolution of city planning. They related these concepts to improving the “social, physical, and visual design qualities of a place” as well as addressing “how the effects of functional and visual design can serve ecological needs” (p. 262). While this focus was only a small part of this well-regarded text, it did serve an important role in planting seeds for future consideration.

Jan Jagodzinski (1987) picked up on their lead, but took it in a more contemporary direction by summarizing some of the philosophical discussions taking place in the field of environmental studies and considering its ramifications for visual arts education. He examined the roots of a “green aesthetic” by tracing its origins back to the ancient Greeks’ separation of the realms of politics and philosophy, male and female, and public and private domains. He saw the profound effects of these separations leading to the patriarchal control of religious and aesthetic ideals; when combined with the mindset of

the Enlightenment, a fertile ground was created for the estrangement of mind/body and culture/nature, eventually leading to rampant industrialization and consumerism. While cynical about art education's continued role in an industrialized society, he nevertheless predicted a need for it in a 'greener' world to help heal the Cartesian mind/body split. This could best be achieved, in his mind, through the influence of eco-feminism on the creation of new myths on which to re-conceptualize our relationship with nature.

Terry Graff (1990) shared jagodzinski's (1987) take on this dualism, and agreed that it lay at the root of our environmental ills. He argued for a more holistic approach to the ways environmental problems were dealt with, positioning art and ecology as allies rather than in opposition to one another. Also drawing from experiences with eco-feminism, Goddess religion, mysticism, and systems theory, he saw many similarities between art-making and ecology:

Basic principles of ecology – the struggle for existence, symbiosis, evolution, life cycles, energy exchanges, biological equilibria, etc. – provide insight into basic art processes. The ideas of interconnectedness of all things, of cyclical processes and regeneration, the assumption that nature is active and alive, is fundamental to the creative process and integral to the field of art education. (p. 86)

Graff demonstrated a greater sense of optimism than jagodzinski by calling for an ecological vision for art education, thereby suggesting that art education did have a role to play in environmental restoration. Although short on specifics, he called for an interdisciplinary approach to create an environmentally-oriented society that would better understand the interconnectedness of all life on the planet. In this he saw art education playing a role in effecting positive social change by re-installing "the spiritual in nature" and "embracing the values of feminism to counter a profane, unbalanced and superficial culture" (p. 95).

While these authors introduced me to new philosophical territory through these articles, the most influential writer in the development of eco-art education theory for me has been the critic Suzi Gablik (1991, 1995). I was unaware of the eco-art movement until I happened upon her book, *The Re-enchantment of Art*. She articulated the need for a radical change in art-making to reflect the shift from modernist to postmodernist aesthetics by criticizing Modernism's "nonrelational, noninteractive, nonparticipatory orientation" (1995, p. 80) as being too removed from any living social reality or moral imperative. Instead she offered an alternate vision of art-making based on her theory of "connective aesthetics" (1995, p. 84): by better connecting art to the realities of daily living, she argued that art can be used effectively as an agent of social change, one that would capture the public's attention through its creative, innovative approaches to society's problems.

In this, Gablik (1991, 1995) made an important contribution to the definition of eco-art education: she documented a growing trend in art-making that related art to environmental concerns, and created a new lens through which this work could be seen and appreciated. Art educators who shared Gablik's interests were not only given an entrée to art focused on environmental issues, but were also provided with an aesthetic framework within which to present this art to students. This was the impetus I needed to more closely examine the role this art and framework might have in art education.

Other writers accepted Gablik's (1991) thesis and began to build on her work to develop a body of literature in eco-art education; Blandy and Hoffman's (1993) article is an excellent example of this. Echoing Gablik's notion of connective aesthetics, these authors positioned art as "a means to engage individuals in social and political issues in

ways that empower them, create alliances, and establish community” (p. 29). They also made clear their agenda of defining and promoting eco-art education, what they called “an art education of place,” by focusing their attention specifically on environmental concerns. They saw a direct correlation between increasing environmental degradation and the amount of ignorance about environmental issues, and therefore called on art educators to play a role in imagining “new relations among art, community and environment” (p. 23). As the basis for their approach, they turned to eco-theory and community-based art education and ultimately defined eco-art education as a means “to teach students about art in a way that promotes an understanding of the interdependence and interconnectedness of all things” (p. 28). This resonated deeply with me, providing support for my belief in the physical and spiritual connections of all life on earth.

Ron Neperud (1995b) added to this growing discussion by articulating a definition of eco-art education two years later. Referring to it as “environmental design education,” he defined it in a general way as “those attempts to develop awareness and concern of and ameliorate action towards our surroundings” (p.223). He pointed out that eco-art education was still in its infancy, and was drawing from a variety of disciplines, including architecture, urban design, anthropology and psychology. He also identified three main subject areas that were feeding its conception: environmental studies, design studies, and ecological studies. In his mind art education was a “central and logical field for an environmental design education...that actively seeks to involve students and teachers in transformative environmental activities through an engagement with community” (p. 229). Like Blandy and Hoffman (1993), Neperud positioned eco-art education as a

community-based endeavour that could lead those involved from environmental awareness to environmental action.

Louis Lankford (1997) built on this by rationalizing the need for eco-art education: by linking to a list of environmental ills, he related his conception of eco-art education more tightly to existing notions of ecological stewardship. Beginning with a definition of ecological stewardship, he saw eco-art education as incorporating “self-awareness of our existence *in* and *with* the world,” “care and use of environmental resources,” and a “robust and sustainable balance” between preservation and conservation (p. 49). He posited that these principles of ecological stewardship offered a way to conceive of a more environmentally-friendly art education; if combined, both would share a moral commitment, an appreciation of the effect of individual actions, and a respect for all living things. In this, he saw eco-art education as “purposeful creativity” where people were “attempting to reconnect with the earth in positive, restorative, and often spiritual ways” (p.50) to draw attention to ecology. His definition, like that of Neperud (1995b), drew heavily from the scientific roots of environmental and ecological education, but balanced this with a focus on values-based education and creative exploration. In this article I found support for my own intuitive understandings about eco-art education, and a great starting point for art and environmental education practices.

Louis Lankford’s (1997) article was part of a special issue of the journal *Art Education* that focused on art and ecology. This was a major step forward, as it brought a new level of attention to environmental art and its emerging relationship to art education. The editors, Stankiewicz and Krug (1997), recognized that eco-art education is part of a “larger, collaborative, educational process that values sustainable development” (p.5),

stressing its interdisciplinary nature and echoing Blandy and Hoffman's (1993) emphasis on interconnectivity. The issue included case studies in elementary schools and in-service programs, giving readers a sense of not only what eco-art education was grounded in theoretically and artistically, but also what it could look like in educational settings.

A year later, Ulbricht (1998) traced his own evolution of thinking in relation to environmental art education from a modern to a postmodern approach that positioned art in an active role to bring about positive environmental change. He noted that contemporary curricula in eco-art needs to consider not only the natural environment as a potential topic, but also the built and social environments, better relating it to physical and socio-cultural concerns. He then proposed ideas for lessons based on these conceptual groupings of natural, built and social environments. His work nicely complemented that of Adams (1999) in built environment education, and confirmed the importance of taking a wider definition of the term 'environment'. It reinforced my thinking about the lack of access for many inner city students to natural environments, and how environmental education for them has been limited because of its traditional roots in nature-based learning. In my mind eco-art education should be grown in urban environments as well as in natural places, as the fundamental concept of connecting people to the places in which they live holds true regardless of the site.

Charles Garoian (1998) took a slightly different approach; instead of locating eco-art education in the context of ecological studies, he defined it in relation to the history of art. While espousing similar values as the afore-mentioned authors for the basis of eco-art education (interconnectedness, empathy, compassion, and respect for the environment), he added a new element to its definition: a negation of the exploitive

attitudes and behaviours of Western art, which he saw as perpetuating an ideology of human domination of the earth. He identified five metaphors that represent “a canon by which the environment was visualized, codified and appropriated for the advancement of Western European culture” (p. 254). These included concepts commonly found in art education programs: “pictorial space to circumscribe the land, perspective to survey the land, the sublime to valorize the land, mapping to simulate the land on paper, and the machine to construct a surrogate land” (p. 254). This positioned eco-art education in opposition to traditional approaches to art education, and raised an interesting question: was it sufficient to raise awareness of the ideology of these metaphors in art education programs, or did their use have to be discontinued all together? I find it hard to believe that these traditional concepts will be abandoned after centuries of development, even if their theoretical roots run counter to notions of sustainability; so in my growing conceptualization of eco-art education, raising awareness is sufficient as a starting point in exploring this new territory.

Kristin Congdon and Doug Blandy (1999) took a different tact. Arguing that community arts organizations, many with ties to folk art traditions, can be an effective means for bringing about positive societal and environmental change, they drew on theories of social ecology, ecological democracy and cultural democracy to prove their thesis. These theories, which share a more holistic approach to living on the earth, see direct (rather than oppositional) relationships between social and environmental problems, and nature and culture. Promoting systemic rather than dualistic thinking, they promoted “an ethics of participation and differentiation” in the building of communities (p.68). These authors believe that community arts groups are “vital to sustaining and

maintaining healthy communities,” and therefore can be living proof that these principles benefit communities (p.79). To this end they provide four short descriptions of community arts programs that manifest the values of social ecology and cultural democracy.

There was a surprising lack of discussion about the theoretical foundations of eco-art for the next five years. Instead what appeared mostly in the literature were case studies that traced individual educator’s experiments in this area. Certainly the best documented of these was the *Art and Ecology Colloquium*, sponsored by the Getty Education Institute for the Arts and the Department of Art Education at Ohio State University in the summer of 1996, and reported on in depth in the journal *Art Education* in November 1997 (Birt, Krug and Sheridan, 1997; Stankiewicz and Krug, 1997; Neperud, 1997). The colloquium brought together academics, teachers, artists, critics and local ecology experts for five days to explore the links between art, ecology and education. Encouraged to think beyond the boundaries of traditional connections (such as using nature as subject in art-making or art as a medium for conveying environmental messages), participants were asked to work collaboratively to examine their understandings of eco-systems thinking,⁵ of connective aesthetics (Gablik, 1991) and of the means of addressing environmental problems imaginatively. Using an inquiry-based learning model, participants used direct experience with local natural environments, observation and reflection, critical thinking activities, and planned actions (in the form of artworks) to instigate and manifest their learning. Themes that were addressed as part of

⁵ Eco-systems are physical communities of biotic organisms (plants, animals, insects and humans) that are dependant on each other as well as on the abiotic components (oxygen, sunlight, climate, water, and soil) of the place. Eco-systems thinking encourages people to consider these webs of life as interconnected and of equal importance to human life.

this process included community-based ecological art education, social ecology, eco-feminism, and ecological restoration, providing a range of perspectives from which participants could work.

While the *Art and Ecology Colloquium* was perhaps the most prominent case study of eco-art education reported in art education circles, it was not the first. Barbosa (1991) described the efforts of educators in Brazil, to develop aesthetic and environmental consciousness in elementary teachers and students through special programs at the Museum of Contemporary Art in San Paolo. She provided an overview of the content of these programs, which included experiencing aspects of the natural world, studying art made by professional artists on ecological themes, and having the children respond through their own art. Culminating in an exhibition and symposium, she believed the effort contributed to an awakening consciousness about the environment for those involved.

Many of the case studies that have appeared have drawn their inspiration from bioregionalism⁶ and an emphasis on place. Blandy and Cowan (1997) documented a series of eco-art education programs in Yellowstone National Park that grew into a national juried exhibit involving over three thousand school children in the United States. With a similar emphasis on place, Anderson (2000) described a series of art programs for schools, inservice and museum programs that focus on the San Joaquin river in California. Keifer-Boyd (2001) recounted the interactions of artist Lynne Hull with students and teachers in a community in West Texas in a program that involved

⁶ Thomashow (1995) notes that “the basic premise of bioregionalism is that ecological considerations should determine cultural, political, and economic boundaries” (p.61). In this “bioregionalists advocate regional self-reliance, using local resources whenever possible; making local decisions; living within sustainable, ecological limits” (p. 61). He recognizes that it is utopian in its vision, but sees it as one possible route to re-connect people with the place where they live, both materially and spiritually.

observation, research and creations made specifically for the wildlife of the Playa Lake area. She also provided a brief introduction to eco-feminist art-making, green criticism, and pedagogical strategies for helping others learn in these ways. And Holmes (2002) reported on an intermediate/senior environmental education program that explored how arts integration affected students' learning in science. She traced the connections between learning in the arts and environmental science, and described a series of integrated ecology lessons, which she believed made ecological information more understandable, accessible and memorable.

These case studies were influential in my growing understanding of eco-art education. I was happy to see that others were already experimenting with learning in this area, and that I wasn't alone in a desire to steer art education in this direction. I found correspondences with and new ideas for the type of work I was implementing in classrooms, and also support for my belief in the valuable connections that can be created between environmentalism and the visual arts. What was missing, however, was an in-depth examination of eco-art programs or lessons at the elementary school level, as this is where I spent my formative years as an art teacher. Was this because elementary students were considered too young for this sort of interdisciplinary learning or the environmental issues it raised? Also lacking was evidence of explicit research agendas: the case studies often described 'one-off' programs with no formal research components. Although this doesn't negate their value, it meant that valuable opportunities to document and demonstrate the worth of the programs were missed.

This growing body of theoretical and practical literature on eco-art education did prove valuable in another way. Many of these writers moved beyond description to

propose the pedagogical means through which eco-art education could be taught. Gablik (1995) promoted a transformative learning approach, based on empathetic listening, dialogue, and collaboration, which she saw as an act of empowerment that would lead to learners' increased ability to "make room for the Other" (p.82). Blandy and Hoffman (1993) advocated a bioregionalist perspective, one that took the needs of the community into consideration. In this, art students would bring "a high degree of self-investment and reflection" (p. 28) to investigate issues of place and community, highlighting their region's social and political concerns. Artworks with an ecological orientation and a respect for the environment could be used to invoke discussion on these issues. They also saw the possibility of enlarging the range of activities typically found in art class:

Exploring and conveying relationships with the Earth; performing acts that cleanse the land, air, and water; and empowering people to act for a healthier environment are important and credible tasks for the artist and important and credible acts to be studied as art (p. 30).

Similarly Neperud (1995b) highlighted the importance of creating a contextually situated curriculum, one that was rooted "in the texture of each community" (p. 236). He stressed the development of learners' understanding of the ideological meanings of environments, with particular emphasis on understanding their own environmental interpretations and values. Learning in this field was best done in an experiential, interactive, creative and imaginative manner, as this would develop learners' feelings of empowerment and interconnectivity. He continued to build on this two years later, drawing from the experiences of the colloquium to create a set of recommendations for linking art, ecology and curriculum (Neperud, 1997). In this he posited that direct experience with one's environment (both natural and built) was crucial and integrally related to an inquiry-based approach to learning. An inquiry model would also help to

develop a sense of community amongst learners, which lends strength in tackling environmental problems. In addition interdisciplinarity would help to develop learners' understanding of ecosystems thinking, and multicultural and socio-cultural concerns that underlie environmental advocacy. Birt, Krug and Sheridan (1997) advocated a very similar approach.

Charles Garoian (1998) was clear in his goal of developing “an ecological pedagogy whose curricular metaphors are based on empathy, compassion and caring for the land” (p. 260). To this end he proposed a specific set of pedagogical principles for eco-art education, derived from his own experiences as a secondary school art teacher. The first was to introduce environmental issues as appropriate content for the art classroom, ensuring sufficient time to study in depth issues between art and the land. Secondly he suggested a critique of the metaphors and values inherent in landscape art, so students could better understand the ideological roles art plays in society. As a third strategy he proposed encouraging students to bring their environmental perspectives from their respective cultures to the table, to better reflect a heterogeneity of approaches to these issues. He noted that this could be complemented by bringing knowledge and values developed in cross-disciplinary studies to the lesson. And finally, the author suggested building students' caring stewardship of the land through an understanding of sustainable practices and empowering students to implement these practices in their own communities. These strategies, based on the discussion of the assumptions which grounds much of the manifestations of the art-nature relationship, offered a means of avoiding the pitfalls of his five metaphors of the canon of Western art education.

Like Garoian (1998), Hicks and King (1996) drew from the tenets of eco-feminism. Inspired by Tronto's (1993) feminist conception of care (caring about, taking care of and caring for), they saw eco-art education as a way to develop our understandings of and interactions with all forms of life on our planet. The authors propose five types of experiences that could lay the foundation for an eco-art pedagogy. The first, *foundational*, has learners look critically at how images contribute to our relationships in the world, while the second, *situational*, has them identify and examine specific environmental problems and situations. The next, *confrontational* and *restorational* experiences, involve taking action to care about and take care of the environment, often with remedial intentions in mind. *Relational* experiences encourage learners to take personal responsibility for environmental challenges, while *sustainable* experiences have them look forward to how they can become care-givers over the long term through a re-assessment of how we as humans live, ultimately affecting all aspects of our lives.

Given the commonalities of all of these authors' definitions, it is no surprise that there are many similarities in their pedagogical approaches to eco-art education. Whether grounded on scientific or aesthetic footings, they recommended a pedagogy that was community-based, interdisciplinary, experiential, interactive, dialogic, ideologically aware, and built on the values of empathy, sustainability and respect for the environment. In this, discussions of eco-art education have prefigured and integrated various trends in contemporary art education, and provided a model on which any art education program could be based. These authors have provided a valuable service by helping to further the development of eco-art education specifically, and by adding their voices to a critique of pedagogical issues of art education more generally.

Interestingly (but not surprisingly), these discussions had little impact on the few eco-art teaching resources being published in the same time period. Taking her lead from McFee and Degge (1977), Carroll (1988) asked teachers to consider the possibility of using the environment as a site for art, using the work of Christo as an exemplar. Her focus was on the human use of natural spaces, with no mention of the impact of these actions (which often had a negative impact on the ecology of the site). Mullineaux (1988) provided similar encouragement, but aimed her instructional activities towards younger children. York, Harris and Herrington (1993) created a set of suggested activities with visual resources, providing background information on four artworks and suggesting interpretative strategies that had students consider the places and spaces around them in a general way. These articles can be seen as a starting point for developing learners' awareness of place by drawing attention to the physical spaces in natural and built environments.⁷ But what they lack is any consideration of or critical thinking about environmental issues or problems. This isn't surprising due to the general lack of discussion and attention given to environmental problems in the mass media during the early 1990s; these articles are simply a reflection of their times.

But more critical resources do start to appear. Following the lead of the *Recycled/Re-seen* exhibit,⁸ Elliot and Bartley (1998) discussed the creative use of found

⁷ These authors are perhaps seen more as precursors to another trend in art education that complements eco-art education, referred to as built environment education. Built environment education increases learners' awareness of local surroundings, of the influences that shape built and natural spaces, and of the need to participate in shaping their place in the future. Built environment education's expertise with teaching about these spaces is a valuable way to bring environmental issues to the fore; its advocates, such as Adams (1999) and Anderson (1997) help to balance the traditional emphasis on the natural world in discussions of place, thereby creating a better understanding of the relationship between the environment, place and community. It also adds a much-needed voice in art education circles about the interactions between nature and culture, an important issue for many eco-artists.

⁸ This exhibit, *Recycled/Re-seen: Folk Art from the Global Scrap Heap*, originated at the Museum of International Folk Art in 1996. Refer to Cerny and Seriff (1996) for the catalogue of this show.

and waste materials in secondary art programs, promoting them for their expressive properties and raising awareness of environmental issues. Gomez (1999) followed a similar line of thinking by publishing a teaching resource to encourage the creative use of re-usable materials to make art. She linked found materials to the rich traditions of American folk art, as did Congdon's (2000) article. The latter took an even broader view on folk art as recycling, which she defined as a type of aesthetic transformation. This idea, of promoting the use of found materials as a form of eco-art education, has appeared intermittently in the literature, but has not gathered much steam. This is somewhat surprising as the use of found materials has been a popular art-making strategy in many elementary and secondary schools in recent years, as it has been with many artists in the last century (Arman, Louise Nevelson, Joseph Cornell, Kurt Schwitters and Tony Cragg come to mind). It might be that many educators link the use of found objects to the history of modernism and the avant-garde rather than environmentalism.

More recently, Anderson & Milbrandt (2004) have promoted environmental concepts more overtly, making it a key component of their 'comprehensive art education' approach. Through the identification of three central themes – a sense of self, a sense of place and a sense of community - their connections to environmentalism became clearer, as these themes support principles common in environmental education programs.⁹ They devoted a chapter to describing how to use art education as a means for developing ecological consciousness. They did this by examining the works of two eco-artists, Ceil Bergman and Nancy Merrill, and by proposing a lesson for secondary students and teachers based on the work. In this their textbook advocated for clear links to

⁹ The TDSB's three organizing principles for environmental education include a sense of place, ecosystems thinking and human impacts. Refer to Appendix I on page 279 for a more indepth discussion of these principles.

environmental concepts as part of art education programs, a radical departure from the formalist and discipline-based content of many of the art textbooks for elementary and secondary-schools published in the last twenty years.¹⁰

The most useful resources to appear in the new millennium, however, are not print-based but digital. Websites such as Green Museum and the Community Arts Network¹¹ now offer a rich set of resources for educators looking to develop their understanding of eco-art education in order to create curricula for their students. These sites provide databases of artists' work, interviews with artists, theoretical texts on the history of and current developments in eco-art, as well as announcements about exhibits and related events. Green Museum also offers a special section, which it calls 'toolboxes', to encourage eco-art practice and education in a range of contexts and sites. As these are a collection of resources from a variety of authors, multiple viewpoints are expressed on issues of content, pedagogy and curricula.

One of the more intriguing texts on eco-art pedagogy on the Green Museum site comes from Krug (2003). He positioned art as part of an integrated approach to curriculum that focuses on the concept of interdependency. He summarized three philosophical views that "characterize approaches to interdependency: *dominion* – human control of nature, *stewardship* – human care of nature, and *union* – humans part of nature" (p. 5-6).¹² He provided examples of how eco-artworks exemplify these positions, and rightfully pointed out that teachers need to understand the basis for their own

¹⁰ By a formalist content, I am referring to texts that find their roots in modernist approaches to art-making; typically this translates into the use of the elements and principles of design as an organizing structure. A discipline-based approach breaks the study of the visual arts into four defined categories: art production, art history, art criticism and aesthetics. This was found in the 1980s in the structure of many art textbooks.

¹¹ These sites can be accessed at Green Museum: <http://greenmuseum.org/> and the Community Arts Network: <http://www.communityarts.net/archivefiles/environment/index.php>

¹² Krug cites the works of Heimlich (1992) as the originator of these views, as have others in environmental education texts.

relationship with nature in order to share eco-art with others. He proposed four basic concepts as the basis for a pedagogy for teaching about eco-art: location, time, material and change. While I agree with Krug's suggestion that these concepts would be appropriate for inquiry-based learning with young children, the inquiry questions he offered based on these concepts are aimed at the secondary level, creating some confusion for teachers/readers. So while my intentions are similar to his, I found his work rooted more in the conceptual rather than in real-life classrooms.

Another recent addition comes from the section editor of Green Museum's *Toolbox for Educators*, Ann T. Rosenthal. In this text Rosenthal (2003) argued for a pedagogy that conceptually and experientially supports a systems approach to eco-art work. She actively encouraged systems thinking, systems practice, team building, collaborative practice and project assessment as her core pedagogical strategies; this was done purposefully as a means to promote her conception of best practices in eco-art. Although framed within the terminology of systems theory, her pedagogical approach is similar to other authors previously mentioned (Neperud, 1995b; Garoian, 1998; Krug, 2003) in that it is inquiry-based, collaborative learning that highlights interconnectivity. By choosing the framework of systems theory however, she once again placed this pedagogy in a higher education context. Younger learners (and I would argue, their teachers) would struggle with these concepts.

Most recently *Studies in Art Education* has shown a renewed interest in the topic of environmentalism and art education; this is a welcome addition to the literature as this publication is widely read and highly regarded. The Summer 2007 issue focused on eco-responsibility in art education, offering a range of articles on approaches to

environmentalism and eco-art education. Some proved a good introduction to environmental issues generally (Gablik & Marriot, 2007; Jagodinski, 2007) though removed from the praxis of art education. Bequette (2007) brought the perspective of indigenous cultures in America to the discussion, highlighting the strong emphasis native cultures have always had on environmental connectedness. His text made an important link to the conversations taking place in environmental education circles about the contributions native peoples can bring to living in sustainable ways.

It was with Gradle (2007) and Graham's (2007) articles that I found the most resonance, as they both emphasized the need to move art education towards a place-based model of education.¹³ Drawing on Blandy and Hoffman's (1993) call for "an art education of place" (p.28) over a decade earlier, these authors provide well-developed arguments for connecting art education to "local and natural communities for content and context" as well as a "sustainability of place as a goal" (Graham, 2007, p. 377). Graham links art education to the pedagogy of place-based education and a critical pedagogy of place¹⁴, while Gradle situates it in relation to the transformative power of performance art. Having also called for a place-based approach to art education (Inwood, 2008), I agree with their assessment of the advantages to intersecting these models of learning:

Art asks us to resist habits of conventional thinking and to consider what we live for. Art education seeks divergent responses to important personal, environmental, and social problems that require creative, imaginative solutions. Art education framed by a critical pedagogy of

¹³ A definition for place-based education and an overview of its related literature follows on page 60 of this chapter.

¹⁴ Graham (2007) defines a critical pedagogy of place as moving beyond the emphasis of place-based education on the physicality of natural environments to include the social, cultural, ecological and political dimensions of place. He writes "Critical place-based pedagogy challenges taken-for-granted assumptions regarding our relationships with nature, notions of progress, and the purposes of education. It creates a space to examine cultural constructions about place, nature and wilderness. Such constructions are examined and alternative, transformative practices that are attentive to issues of local community and ecology are sought" (p. 387).

place creates opportunities for students to engage in thinking and artmaking that consider vital questions about nature, place, culture and ecology” (Graham, 2007, p. 387).

Taking a place-based approach to art education may offer an unexpected advantage by having a unifying effect on a range of special interest groups that currently exist within this discipline. Community-based art education advocates would be on board: London (1994) articulated a vision of art education that called for a “curriculum more responsive to the world of the child [by] broadening the arena of education to include the people, places, and events of the entire community” (p. xi). He rightly noted that “the world outside the classroom is far grander, more compelling, and ultimately more instructive than the world inside the classroom” (p. xiii). Cunha Bastos (2002) concurred with London’s views, and shared his perspective that a locally-based curriculum must be coupled with a transformative approach to pedagogy. Urban art education proponents (Simpson, 1995; Thurber, 1997; Asher, 2000; Holloway & Krensky, 2001) would also join forces, as a place-based approach would better support urban learners in seeing the wonder and positive qualities of their own communities, as well as working actively towards making them better places to live aesthetically, physically and environmentally. Built environment educators would also applaud the increased attention to learners’ local surroundings, of the influences that shape built and natural spaces, and of the need to participate in shaping their place in the future (Adams, 1991).

A place-based approach is one rich in possibility as a model for eco-art education, and one that has informed my own approach to curriculum development in this area in recent years. It is a direction that deserves more exploration, as do many of the other

models and pedagogies in this growing body of literature. Yet what is most clearly missing in this field to date is a richer mapping of two areas of eco-art education that have received minimal attention: one is a focus on teacher development, and the other is on elementary settings. If teachers are to introduce and teach students about eco-art education, they need to first learn about this area themselves. How is this best achieved? What types of professional development or support do they need to share learning in this area with their students? And which models of eco-art education will be most applicable for them? The second gap in the literature centres around elementary settings; most of what has been developed has been aimed at secondary or post-secondary learners. I believe (as do many educators) that the age of the learner is an important factor in growing positive environmental values and behaviours; the younger the learner the more likely these values will become second nature. This dissertation, therefore, aims to help fill these gaps in the literature by exploring elementary teachers' experiences in learning about, developing curriculum for, and delivering eco-art education to their students.

Environmental Art

I have long been intrigued by the land-based and site-specific art that appeared in the 1970s in response to a growing awareness of environmental concerns; works by Robert Smithson, Nancy Holt, Alan Sonfist, Walter de Maria and Richard Long captured my attention in my undergraduate years, and have frequently turned up in my course syllabi since then as I have shared their work with others. Over the past five years my familiarity with artists working under the banner of environmental and eco-art has grown considerably, thanks in part to exhibition catalogues (Matilsky, 1992; Spaid 2002) books (Sonfist, 1983; Beardsley, 1998; Kastner & Wallis, 1998; Gooding, 2002) and articles (Luke, 1992; Bright, 1992; Sanders, 1992; Berry, 1992; Krug, 1997; Hollis, 1997; Blandy, Congdon & Krug, 1998; Carruthers, 2006; Collins, 2007).

Artists such as Joseph Beuys, Hans Haacke, Alan Sonfist, Agnes Denes, Mel Chin, Ana Mendieta, Newton Harrison and Helen Mayer Harrison, Lynne Hull, Mierle Laderman-Ukeles, Dominique Mazeaud, and Andy Goldsworthy, to name only a few, have been responding to environmental issues and concerns in innovative ways for over three decades. These artists and the next generation following in their footsteps have touched countless viewers through their work in terms of their understanding of environmental concerns. They have devised innovative means of communicating ideas and creating solutions for these concerns, thereby reaching people and other life forms in ways that scientists and academics have been unable to do. In this I consider their work integral to the theoretical and pedagogical research being done in academic settings, and therefore feel it is important to cite this field as a specific source of inspiration for this dissertation.

One of the challenges in this field is distinguishing among the nomenclatures in environmental art. The movement has been referred to in many ways: ecological art, eco-art, green art, earth art, earthwork, land art, and nature art. There are distinctions between these terms, however, and my use of the terms environmental art and eco-art is purposeful. I see earth art, earthworks and land art as a separate movement that acted as a precursor to the development of eco-art. Earthworks were created by a disparate group of artists including Michael Heizer, Robert Smithson, Walter De Maria, and Nancy Holt, and began appearing in the late 1960s at locations throughout the States. Taking their lead from megalithic structures such as Stonehenge, Amerindian burial mounds, and the Egyptian pyramids, these artists created large-scale artistic interventions in the environment. Using such organic materials as sand, stone, soil, water, rock and plants, the works demonstrated these artists' rejection of Western sculptural traditions and their desire to reconnect with the natural world. These conceptually complex pieces used the land as medium and as gallery, striving to raise awareness of political, cultural, natural and spiritual issues. Inspired in part by the emerging societal interest in ecology, these artists helped raise the counterculture's concerns with systems of power, control, and authority in the context of the art world. However many of the works, like Heizer's *Double Negative* (1969) and Smithson's *Spiral Jetty* (1970), proved so damaging to the natural sites in which they were created that they cannot comfortably be considered exemplars of eco-art today.

As more artists became engaged with issues of environmentalism and ecology through the 1970s and 80s, a new moniker was needed to distinguish their work from earth art. In the early 1990s Matilsky (1992) offered a distinction between environmental

art and ecological art. She proposed that ‘environmental art’ be used to designate those works that establish “a reverent relationship between the viewer and the earth” (p. 37), ones that call attention to nature by interpreting it as “alive and constantly changing through an art that mirrors its cycles and rhythms” (p. 38). In contrast, ‘ecological art’ embodies more of an activist stance, not only raising awareness of ecosystems but also proposing or creating solutions to their human-induced challenges. Artist Ruth Wallen (2007) has expanded on this idea:

Ecological art...is grounded in an ethos that focuses on inter-relationships. These relationships include not only physical and biological pathways but also the cultural, political and historical aspects of ecological systems. The focus of a work of art can range from elucidating the complex structure of an ecosystem, examining a particular issue, i.e., a type of relationship, interacting with a given locale, or engaging in a restorative or remediative function. Eco-art may explore, re-envision, or attempt to heal aspects of the natural environment that have gone unnoticed or reflect human neglect. Through moving visual imagery, humor or juxtaposition of disparate elements, the work may challenge the viewer's preconceptions and/or encourage them to change their behavior. (Cited in Collins, 2007, p. 9).

Despite these authors’ attempts to clarify the use of these terms, there seems to be little broad consensus as to their use today. While some curators and artists make distinctions between these two movements, others use them interchangeably. Taking another tact, I have chosen to use the designation ‘eco-art’ to encompass environmental and ecological art projects. In my use of the commonly used prefix ‘eco’, the term eco-art succinctly links art, environmentalism and ecology in a positive way, a type of verbal and written shorthand easily understood and then used by students and teachers. ‘Eco’ translates roughly to ‘house’,¹⁵ which reminds learners that in matters of the environment, we are not talking about abstract ecosystems that are unconnected to where we live; all

¹⁵ Ecology comes from the Greek word *oikos*, meaning ‘house’, and *logos* meaning ‘knowledge’. Retrieved on April 7, 2008 from the Wikipedia website at <http://en.wikipedia.org/wiki/Ecology>.

ecosystems on earth are inextricably linked one to another, as the earth is our house and home. Eco-art, therefore, is art about our home on earth, a concept children and adults can easily grasp.

Perhaps what is more important than the terminology employed to describe this movement is the approach to art-making that is taken by eco-artists. Rosenthal (2007) has proposed a list of values or “ties that bind” (n.p.) to help distinguish eco-art from other types of contemporary art practice. She believes that a land ethic of interdependency among all living things is central, as is systems thinking to better understand the ecosystems within which we live. She highlights the importance of sustainability, social and biological diversity, and social and environmental justice in supporting all species’ right to live in a healthy world over the long term. And she cites the values of collaboration and integrity as key to eco-art practice, in order to bring together disparate communities to work towards closing “the gap between what we value and how we act in the world” (n.p.). These values make sense to me, and provide an excellent starting point for conceptualizing eco-art education in elementary schools as it moves art education beyond the realm of the ‘make and take’ and into a learning process more focused on meaning-making.

While Rosenthal (2007) has taken a values-based approach, there have been other attempts to categorize eco-art practice via the types of themes or strategies used by artists. Blandy, Congdon and Krug (1998) identified these as the use of ordinary materials, a consideration of nature and ethnicity, recycling and location, gender and ecofeminism, environmental devastation, sign texts and ecological and cultural restoration. Krug (2003) narrowed this to a more concise list of “ecological art

perspectives” a few years later, citing environmental design, ecological design, social restoration, and ecological restoration as the key types (p. 8). Kastner and Wallis (1998) sorted eco-art works by the strategies of integration, interruption, involvement, implementation and imagining (perhaps unintentionally putting ‘I’/the self at the start of each process). More recently Collins (2007) has narrowed this to just three modes of practice, which he refers to as lyrical expression, critical engagement and transformative action.

Of these typologies, I prefer Collins’ (2007) model because it provides room for a variety of levels of practice to co-exist. He defines lyrical/creative expression as being “based in an internal relationship to social, political or environmental systems. It emerges from a desire to be involved” (p. 3). While he cites the *Running Fence* (1976), a work by Christo and Jeanne-Claude as an example of this, a better exemplar is the work of Andy Goldsworthy, a Scottish sculptor who uses natural materials and processes to create his place-based, aesthetically appealing artworks (refer to Goldsworthy, 1990 for a survey of his works). In a documentary on his work (Riedelsheimer, 2004) it is clear that the dynamic Goldsworthy creates with natural systems has a strong internal basis; his close relationship with natural materials and elements is built on a primal desire to be involved with the natural world. The beauty of his work is that it creates an eloquent dialogue between these natural sites and their cultural contexts, reminding us as human viewers of the complex relationships that exist in any given place on earth.

The second mode of practice Collins (2007) refers to is critical engagement: “it is primarily external from its social, political or environmental subject” and so “tends to be a monologue that seldom has any capacity or framework to receive or process response”

(p. 3). The work of Canadian photographer Edward Burtynsky is a good example of this mode (his work can be found in Pauli, 2003). His large-scale photographs capture the negative impacts of human actions on the earth - stripmines, rock quarries, tire dumps, boat graveyards – in complex, layered images that solicit shock and indignation on the part of viewers. Yet it is not only Burtynsky’s acknowledgement of the devastation of these sites that makes his work so powerful, but our complicity in their destruction that makes the photographs hard to turn away from. As viewers we remain powerless to change that which we have wrought, as no easy means to rectify these polluted areas and assuage our guilt are offered by the artist (and rightfully so).

Artists working in Collins’ (2007) third mode of creative/transformational action offer viewers a higher level of engagement, which he characterizes as “creative interaction and rational impact” (p. 3). He describes it as emerging from “a moral and ethical position” but embracing “the creative potential of discourse and compromise”(p.3), and acknowledges that these works are often difficult to accept and defend as art. Mel Chin’s *Revival Field* (1990-93), an installation project in a contaminated landfill site in Minnesota, can be seen as an example of this mode. Inspired by scientific research into hyper accumulator plants that leach heavy metals from polluted soil as a form of purification, he collaborated with scientists to create an interdisciplinary art project that would develop and test their ideas. The work provided the means to explore ideas of alchemy and creative collaboration, stimulated debate about the boundaries between art and science, and transformed current thinking about green remediation.

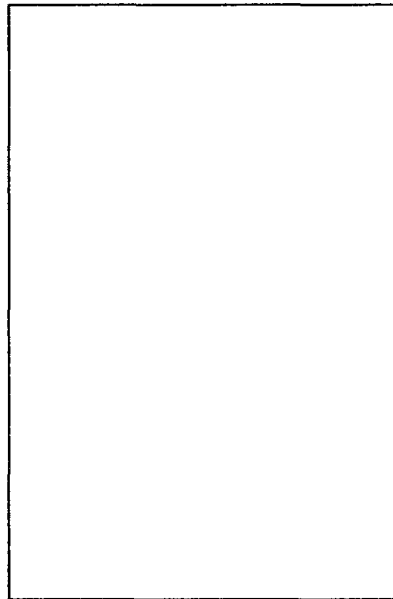
Tim Collins (2007) admits that the most powerful forms of eco-art are those that manage to combine elements of all of these three modes of practice, as this is where “we all are artists with a role to play in the creative transformation...of the world”(p.3). I agree with his choice of Joseph Beuys’ project *7000 Oaks for Kassel* (1982-85) as an exemplar. This project involved putting Beuys’ theory of social sculpture into play by re-positioning tree-planting as an art-making project. He invited the citizens of the German city of Kassel to participate in this Documenta 7 art project by planting 7000 oak trees in an effort to reforest their urban environment and remedy issues of air pollution and global warming in their community, both locally and globally. The community responded enthusiastically, starting the planting in 1982 and finishing it five years later; since then, the project has spread to communities around the world. The power of the project lies in its ability to function as lyrical/creative expression for each participant (helping to make their urban community more beautiful), combined with elements of critical engagement as a community (spreading awareness of the effects of deforestation) and transformative action (aiding in a form of green remediation).

Tim Collins’ (2007) approach to eco-art provides an intriguing starting point for conceptualizing eco-art education in school-based practice. It provides criteria by which eco-art learning can be assessed, not to judge its quality but to ensure that a range of modes of practice are being used. It may also encourage teachers to think more broadly about what can be conceived of as eco-art education if they have models of professional artists undertaking similar types of practice through their own work. I see my role in the development of eco-art as translating Collins’ (and others’) theories into a language and

model(s) that teachers and students can understand and put into play for themselves in the development of their own eco-art.

As Hull has said: “It is the venue of artists, poets, and philosophers to create new myths, revise the stories, encourage the shifts in attitude we must have for all to survive in the long range,” (quoted in Kiefer-Boyd, 2002, p. 328). By incorporating eco-artists and their work into curricula for art education, teachers can play an active role in helping their students generate their own myths, stories and attitudes for surviving and thriving in an environmentally damaged world. This thesis aims to demonstrate how eco-art can be used in this inspirational way, and how children’s art can become part of the quickly growing legacy of eco-art in schools and their local communities.

When I joined the Yard Committee at Runnymede Public School in 2000, I didn't really know what I had to offer, but as a parent volunteer I came with an agenda in mind. The schoolyard was typical of many urban schools - mostly asphalt and turf, with a track and lots of chain link fencing. Its one unusual feature was the extensive naturalized garden that ran behind the school.



Appropriately called the Hillside Garden, this was a two acre space that had started as a grassy slope but had been planted with native shrubs, grasses and trees over a ten year period before I arrived. It was a magical place, full of trees, winding pathways, hiding places and natural treasures. Sadly it was only accessible to students during class hours, as it was difficult for teachers to supervise. So the agenda that formed early on in my own mind was somehow to bring some of this magic to the front asphalted yard. I didn't realize it at the time, but fulfilling this agenda would prove to be the start of many guerilla art gardening projects, and that Runnymede would become a wonderful exemplar of what guerilla art gardening can do for a school community.



Environmental Education

While exploring the literature in eco-art education, I also delved into the literature on environmental education to increase my understanding in this field. I was interested in how its key theorists, practitioners and researchers currently position learning about the environment in relation to interdisciplinary learning, and whether the arts appear in their perspectives. While it is beyond the scope of this project to summarize the current trends in this field as a whole, I can instead highlight those writings that have had the greatest effect on my thinking to date.

What has struck me most about environmental education and its related research are its strong ties to the physical sciences and science education (Sauvé, 1998; Gurevitz, 2000). This is not surprising, as the study of ecology has been firmly rooted in the discipline of science for centuries. However as an eco-art educator, my quandary lies in the positivist, cognitive approaches to learning that have driven science education in the last century; these draw heavily on linear thinking, information acquisition and intellectual problem-solving as the main routes to learning. In turn, environmental education has drawn on similar models in the development of its knowledge base, pedagogical strategies and research methodologies, often to the exclusion of other disciplines such as the arts and humanities. Implicit in this approach has been the widespread belief, as described by Chawla (1998), that science will be the source of solutions to environmental problems, despite the growing opinion that traditional approaches to science and science education are at the root of many of these problems in the first place.

Similar models of thinking have informed the pedagogical approaches typically used in environmental education. Russell (1997) noted that environmental education is dominated by the transmission and transaction approaches to teaching; this was confirmed by Weston (2004), who described that the implicit model of pedagogy as “information-transmission; the teacher is the transmitter; talking is the primary mode – usually the only mode in fact” (p. 34).¹⁶ Many students of elementary and secondary science classes would confirm the frequent use of this approach; the science teacher describes a concept and the main role of students is to memorize the information for the next test. There are few field trips or hands-on experiences.

Fortunately writers in the environmental studies field (Orr, 1992; Russell, 1997; Bailey & Watson 1998; Chawla, 1998; Lousley, 1999; Gurevitz, 2000) have begun to challenge this positivist stance and call for a wider variety of perspectives to be incorporated into environmental education. Orr (1992) was an articulate supporter of this notion, and has declared that environmental education “requires active engagement of the humanities in particular”(p. 84) if any positive ecological change is to happen in the future. Engel (1991) promoted environmental learning from an aesthetic orientation, as did Hansen-Moller and Taylor (1991); similarly Clover (2000) recommended the integration of environmental education with community arts as a way to bring about positive social change. Iozzi (1989) and Gurevitz (2000) explored the important role of affective learning (typically used in the humanities) in environmental education and

¹⁶ The notion of three modes of curriculum (transmission, transaction, and transformation) originates with Miller and Seller (1990). They describe the transmission approach as a one way movement of knowledge from curriculum to student, whereby the student is a passive recipient of content and typically learns through rote learning methods. The transaction approach is seen as dialogic, with the student reconstructing knowledge through problem-solving, a keystone of the scientific method.

concluded that there was a need for affective and aesthetic experiences in this area of learning.

Educators working in a variety of subject areas have advocated for the benefits of integrating the humanities and their learning approaches into environmental education. In language arts, Lindholt (1999) promoted creative writing as a way to develop ecological literacy, while Wilson (1995) encouraged ecological autobiography as a tool for environmental education. Along these same lines I have witnessed firsthand Allan Foster's successful innovations in storytelling and myth-making as a means of actively engaging children and adults in environmental learning (Foster, 2000). Music educators are just beginning to promote the benefits of integrating music into environmental education (Ramsey, 2002; Holmes, 2002; Turner & Freedman, 2004) as are drama educators (Bailey & Watson, 1998). While the efforts of visual arts educators have been well-documented previously in this chapter, Adams (1991) linked the benefits of art education with environmental learning specifically:

Certain kinds of art-based study can encourage contemplative, reflective thought, which can extend environmental awareness, an essential basis for environmental understanding. Such study is concerned with exploring our relationship with the environment...It is not merely passive absorption or simply active response, i.e., reaction to environmental stimuli. It is a creative act - a reworking of experience in order to make sense of it (p. 21).

I share the same desire as these authors to move beyond the traditional means of environmental education and contribute the best of a wide range of disciplines to the common goal of increasing environmental literacy across the general population. But injecting aspects of the humanities into a traditionally science-based discipline will not necessarily result in the more holistic approach to environmental education that many of us desire. What is also needed is a major shift in pedagogy to a more transformative

approach to learning, one that complements cognitive approaches to learning with affective and psychomotor ones. Russell (1997) advocated for moving towards Miller and Seller's (1990) recommended approach to curriculum, the transformative, as a more appropriate orientation:

Environmental educators working from a Transformative perspective perceive nature as more than a resource; indeed, much of their work involves helping students understand the cultural and historical specificity of this and other attitudes towards nature. These educators feel a deep connection with and reverence for all life, understand nature as Home, and teach and learn from a position where all life is seen to be interconnected and interdependent. They value and nurture healthy and sustainable relationships both among humans and between humans and other life (Russell, 1997, p. 37).

Russell (1997) rooted transformative learning in the philosophies of deep ecology and eco-feminism, both of which have had an impact on my own approach to teaching and learning about the environment. Deep ecology aims for a critical re-evaluation of how we think about our place in the world as humans and our relations to other forms of life on this planet. It calls for a radical new vision that questions conventional notions of scientific progress, consumption, and industrialization as a way to get people to reconsider how they assess their quality of life (Thomashow, 1995). I agree with its basic tenets, as so many of our environmental challenges can only be rectified by a major shift in the values that have driven the western world since the Enlightenment. These same values have driven education; reevaluating them will require a similar de/reconstruction in this arena.

Eco-feminists also advocate for a critical re-examination of these values, with an emphasis on those values that have sustained power imbalances (male/female, human/nature) and fueled the environmental crisis. Some ecofeminists (Tronto, 1993;

Hicks & King, 1996) advocate for the cultivation of a stronger culture of caring in society in general but more specifically in education, hopefully leading to a deeper understanding of the interconnections between all forms of life on earth. One of Thomashow's (1995) students described this well:

An ecofeminist education assumes that humans as an interconnected part of nature have knowledge about themselves that is very different from scientific, rational, book knowledge. By accepting our interconnectedness, by internalizing that we are nature, human beings can understand how they are integral parts of the human-earth community. Ecofeminism helps educate people in a way that encourages them to sustain and nurture a community of diverse but interconnected forms of life (cited in Thomashow, 1995, p. 57).

For me, these philosophies of environmentalism can best be integrated with art education and transformative learning through the praxis of place-based education, one variant of environmental education (Sanger, 1997; Smith, 2002; Sobel, 2004). Place-based education is a relatively new addition to discussions of curriculum and pedagogy in North America despite its roots in ancient practices; up until the Industrial Revolution, education was grounded in its local place not by choice, but as a means of survival. Some traditional communities have maintained a close connection to place through their schools, but in many more (particularly in industrialized nations) these connections have been greatly reduced, if not entirely lost, over the last century in the shift towards curricular standardization, national achievement tests, and mass-produced curricular resources. So while place-based education might have been implicit in curriculum in the past, it is seen as an innovative and transgressive approach by many today.

Defined as being “grounded in the resources, issues, and values of the local community,” place-based education “focuses on using the local community as an integrating context for learning at all levels” (Powers, 2004, p.17). Place-based education

seeks to re-establish connections between learners and their own neighbourhoods, increasing the relevance of their curriculum and making it directly applicable to their own lives. If learners develop strong bonds with their place and their community physically, politically, emotionally, and spiritually, they are more likely to care for it and seek to improve it.

Place-based education has much to offer art education. Its roots in environmental education bring a wealth of experience in developing awareness of and engagement with environmental concepts such as biodiversity, sustainability, conservation, preservation, reclamation and restoration. It has experimented with how to raise public consciousness around these issues in formal and informal educational settings, from schools to conservation areas. It can also help learners make better connections by bringing self and community into a dialogue with place, resulting in real world learning that is experiential, memorable, and central to the themes of their lives. Art education has been slow to engage with and respond to the community-based challenges of our times, including social and environmental problems, and therefore can learn from the extensive body of writing about place-based education that has been published in recent years, seen in the work of Orr (1992), Sanger (1997), Smith (2002), Gruenewald (2003), and Sobel (2004), among others. Although artists have been devising creative solutions to social and environmental problems since the 1970s, art educators for the most part have not kept pace, and have not done enough to share this approach to art-making with a broader audience.

Art education can also bring its strengths to place-based education: it has proven to be fertile soil in which to grow creative approaches to problem-solving, critical

thinking skills and self-reflexive learning, all necessary for making our communities healthier and happier places. It achieves this by making learning personal, in part through developing learners' visual, spatial, emotional and embodied forms of intelligence, but also by giving them communicative tools to share their individual perspectives. It is this ability, to feed learners' minds yet also touch their souls, that makes art education a powerful ally in fostering environmental literacy through a place-based approach.

Inherent in this approach is a reconstructivist agenda, one that uses environmental and art education not only as a means for learners to explore and better understand themselves and the place in which they live, but also as a way to increase their emotional, social, and political engagement with their community. By developing their knowledge of and emotional attachment to their community, I believe that learners are more likely to develop a sense of care of, about and for their place (Tronto, 1993), transforming attitudes and behaviours that would result in healthier environments and communities.

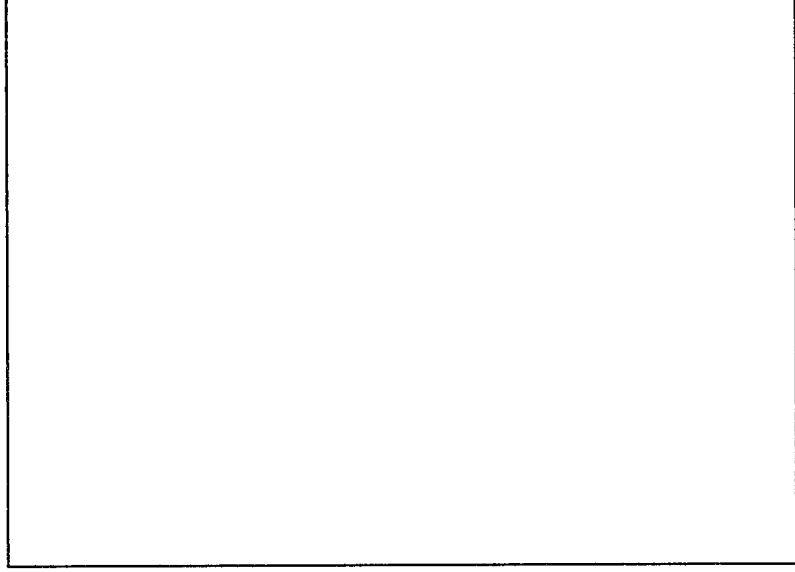
What I hope to add to this body of literature in environmental and place-based education is a strong voice and a rich set of data to advocate for the need for these theoretical and pedagogical changes. Art education's long history with experiential, affective, and embodied approaches to learning can be used effectively to support the call for the inclusion of a wider variety of perspectives in environmental education. I also hope to help raise awareness of what environmental/student artists can bring to this arena, as their creative solutions to environmental problems may offer innovative approaches that science has yet to discover.

My first immersion into the milieu of environmental education coincided with my first trip to summer camp – all at age thirty-six. As a kid I had never wanted to go to 'away camp'; who needed the bugs, the bad comforts? So it was with to attend a summer

Cliffs Outdoor Education learned about education in ways that and learn more

I was the lone artist in a education teachers, and encouraged at every turn on experiments, the hikes Not only did I discover summer camp, but it also important perspective to education. Seven years summer institute for

education - I had come was asked to facilitate the experience with guerilla art gardening, which has been an innovative way to get students and teachers more involved with learning in their own schoolyards.



food and the lack of creature some trepidation that I signed up institute for teachers at Mono Centre. Along with forty others, I environmental and outdoor saw me laugh harder, sing louder intensively than I had in years. sea of science and outdoor yet was welcomed and – in the discussions, the hands- and the campfire sing-alongs. (thirty years too late) that I loved confirmed that I had an bring to environmental later, I was invited back to lead a teachers on environmental full circle. One of the reasons I institute was because of my



CHAPTER 3: PLANTING METHODS

When I designate an experience as educational, I imply that its effect on the subject transcends the immediate encounter, its season passed, a spore remains and grows roots in the psyche, bringing forth new vegetation, nurtured by that singular inimitable soil.

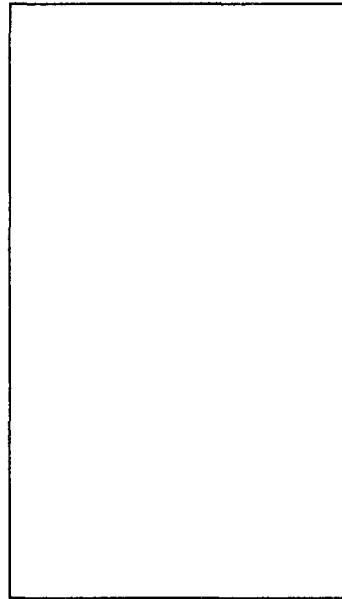
(Grumet, quoted in Wilson (2004), p. 50)

This dissertation aimed at doing some guerilla gardening in the school system, at planting some curricular seeds in eco-art education and seeing what might grow. As so little comprehensive curriculum development had been done in the field of eco-art education at the elementary level, this project provided a unique opportunity to learn about how teachers develop and present learning in eco-art to their classes. I had proposed to answer the following questions: what does eco-art education look like in elementary classrooms? What curricular content and structure resonates with teachers and students in eco-art lessons? Is a specific pedagogy necessary to present eco-art content, and if so, what are its features? How do teachers' definitions of eco-art education relate to their practice of it? How do teachers weave art and environmental education together to learn about environmental issues and concepts? These questions aimed to better understand teachers' experiences with the development and implementation of eco-art education at the elementary level.

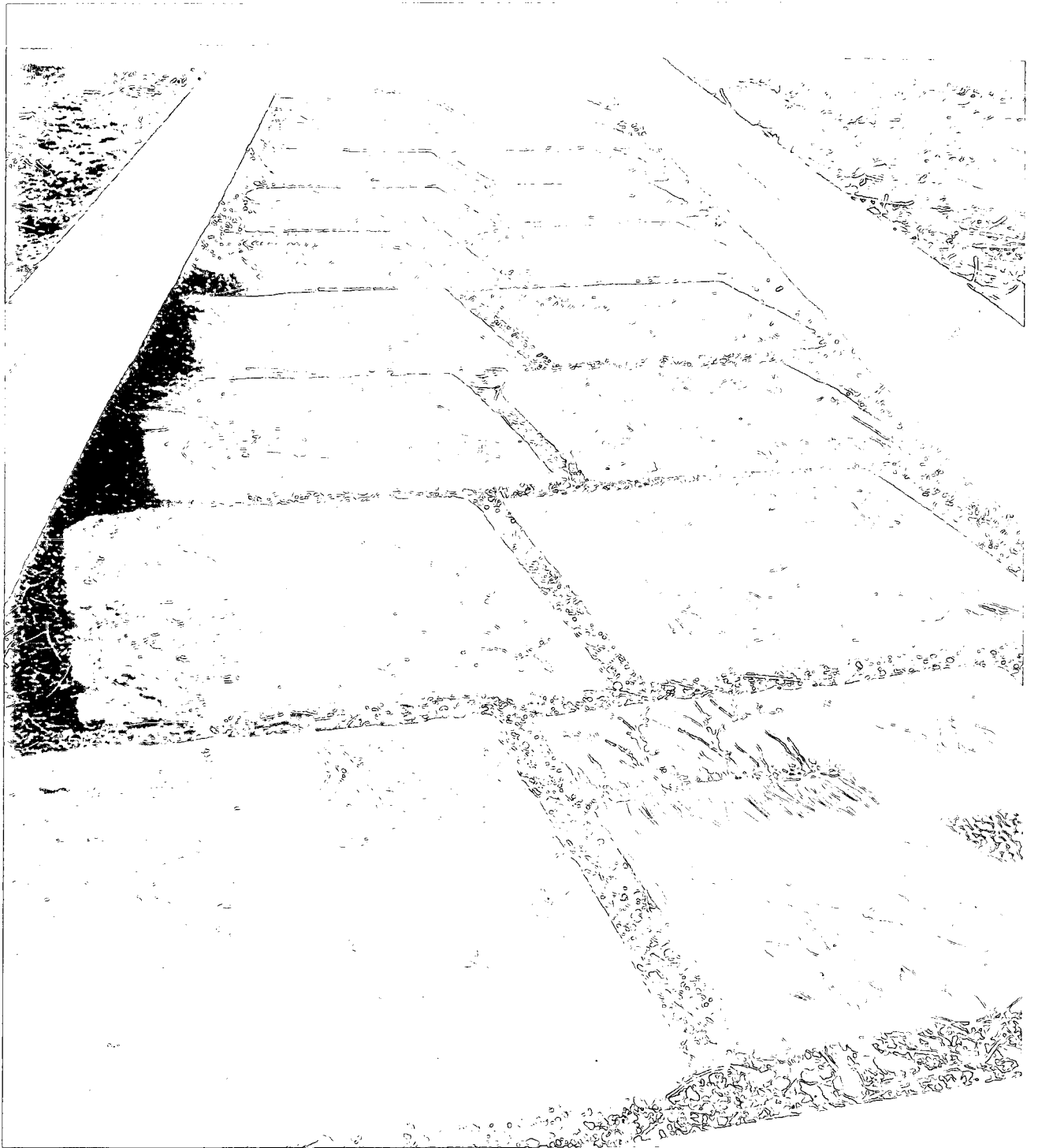
I acted as a catalyst for answering these questions by bringing together a team of generalist elementary educators positioned as teachers-researchers to lend their classroom expertise to the project; the team consisted of the four teacher-researchers who signed on to the project and myself as lead researcher. By providing a background in eco-art

education history, readings and resources, I facilitated the team's understanding of the term eco-art education, and helped them apply their definitions to the construction of appropriate lessons or teaching strategies for eco-art curricula. While I played a consultative and participatory role in addition to assuming the duties of lead researcher, the inclusion of practicing elementary educators ensured that the development of eco-art curricula was firmly grounded in the realities of classroom life. Their roles involved planning eco-art curricula and implementing it in their own classrooms, and sharing these results with the research team as a whole. Throughout this process we were guided by a pair of frameworks that helped inform the research and our approach to the inquiry as a whole: collaborative action research and arts-informed research.

The first major guerilla art gardening project I undertook at the school blossomed in the first year of my doctoral studies. It signaled a new phase of creative growth for me, and planted the seeds for the rest of my doctoral research.



In the spring of 2004 I brought together students, teachers, parents and local artists to create a series of forty-eight handmade garden stones that were installed permanently in the schoolyard as two pathways. Each large concrete paving stone contained four images illustrating environmental issues, each one created by a grade eight student in the school – over 170 students and a team of twenty parent volunteers were involved in all. The stones addressed issues of soil compaction and erosion around some trees and added a playful aesthetic in a heavily asphalted yard. This proved to be a wonderful pathway – into guerilla art gardening and eco-art education – as well as into building community in the school.



Frameworks

Two methodological frameworks were used for this project: collaborative action research and arts-informed research. The first, collaborative action research, provided an intriguing pathway into the development of eco-art education. It enabled a team-based approach of cooperation and co-learning in curriculum development that allowed for multiple voices to contribute to the creation of an innovative model(s) of art education. In this, it ran counter to more traditional approaches to curriculum development, which typically favour the formal and theoretical knowledge of academics over the tacit knowledge and pedagogical expertise of practicing teachers. The second, arts-informed research, supported and extended the analytic and interpretative processes of the first, allowing for an alternative means of framing and sharing the data of this dissertation with others.

Collaborative action research

Collaborative action research offered a unique opportunity for the team to share and exchange practical and theoretical expertise in order to plan, implement, observe and reflect on eco-art curricula over the span of a school year. Perhaps it is not surprising that I selected collaborative action research as my main framework as it has much in common with guerilla gardening. As Kemmis and McTaggart (2003) describe it, collaborative action research is focused on the practical, the participatory, the critical and the recursive (defined as reflexive and dialectical). Guerilla gardening shares these characteristics, as well as its activist stance and emergent design. In this both undertakings involve complex processes that are cyclical in nature and rarely result in clear-cut endings;

instead they hopefully lead to deepened understandings and more questions (Herr & Anderson, 2005).

It should be noted that action research is not one clearly delineated approach, but a family of research methodologies that pursue action and research simultaneously (Dick, 1999). It is “an emergent process which takes shape as understanding increases” and an “iterative process which converges towards a better understanding of what happens” (Dick, 1999, n.p.). Reason and Bradbury (2001) further defined action research as “a participatory, democratic process concerned with developing practical knowing” by seeking “to bring together action and reflection, theory and practice, in participation with others, in the pursuit of practical solutions to issues of pressing concern to people” (p.1). The integration of the theoretical with the practical was key for me in choosing an action research approach for this project; I concur with these authors’ sentiments that “action without reflection and understanding is blind, just as theory without action is meaningless” (Reason & Bradbury, p.2).

Zeichner (2001) provided a concise overview of the main traditions of action research, noting that the roots of action research lie in the theories of Kurt Lewin and Stephen Corey in the 1940s in the United States, and the teacher-as-researcher movement in the United Kingdom in the 1960s. These developments were inspired by Lewin’s (1948) iterative cycle of *plan-act-observe-reflect*, a systematic method for studying the effects of actions in the workplace. This process utilized planning, action, observation and reflection as the means for problem-solving and social change. Grbrich (2007) noted that action research locates its philosophical roots in constructivism; as I support many of constructivism’s key constructs, this is a good fit for my approach to research. Like

constructivism, I see knowledge as jointly constructed by all involved in an inquiry and assume that multiple realities will be represented in the data. My interest lies generally in seeking patterns of meaning and definition in a “shared constructed reality” (Grbrich, 2007, p. 9), and specifically on how the research team interpreted and made sense of their experiences in the context of this project.

There are many variants of action research; Herr and Anderson (2005) identified participatory action research, practitioner research, action science, cooperative inquiry, and teacher research, to name only a few. But given my desire for a non-hierarchical, participatory mode of inquiry that integrated theory and practice, collaborative action research was the most appropriate variant for this dissertation. In better understanding this approach, I was influenced by Schensul and Schensul’s (1992) work in collaborative research. They defined collaborative research as “building multisectoral networks that link researchers, program developers, and members of the community or group under study with the explicit purpose of utilizing research as a tool for joint problem-solving and positive social change”(p. 162). Its main objective is to include all stakeholders in the research process in order to increase the likelihood of implementing research results for the benefit of the population under study. These authors posited that this helps “blur the distinction between researchers and practitioners in the field” (p. 163), a highly desirable goal from my perspective as it acknowledges the expertise of practicing educators and makes them central to the research and design of innovative curricula and pedagogy. The key elements of collaborative action research, which include empowering and involving all stakeholders in an inquiry, information sharing, creative and co-operative problem-solving, and cultural transformation, all aligned with my ontological

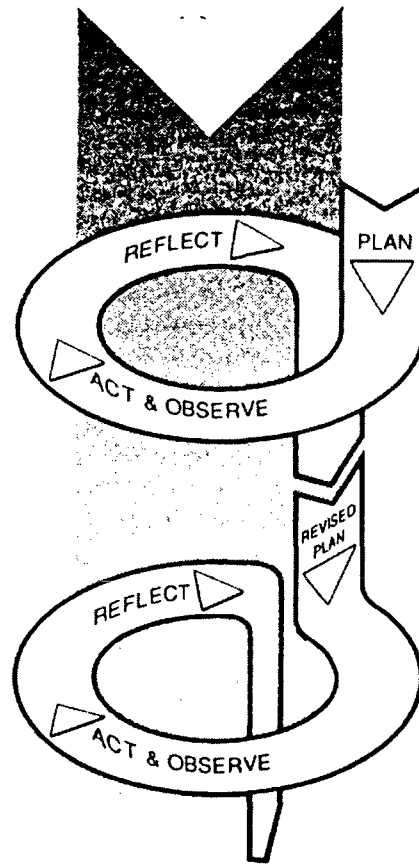
and epistemological stances, making this framework a logical choice to support my own approach to inquiry as well as the questions under study.

A closely related framework that also proved influential in the development of methods for this thesis is participatory action research (Kemmis & McTaggart, 2003), which shares many of the same attributes as collaborative research. Drawing on a combination of participatory research, critical action research, classroom action research and action learning, this methodology “emerges where people want to make changes thoughtfully - that is, after critical reflection” (p. 346). It utilizes a spiral of self-reflective cycles of planning for change, similar to much action research: implementing a change, observing and reflecting on the consequences of that change, and re-planning for subsequent change based on the first steps (refer to Figure 1 on page 74 for a diagram of Kemmis and McTaggart’s model). I’m not convinced that the action research process is as defined or tidy as their diagram suggests, but I do share their belief in the inherent social nature of the processes and practices of education, and that changing these practices should be a social process in itself.

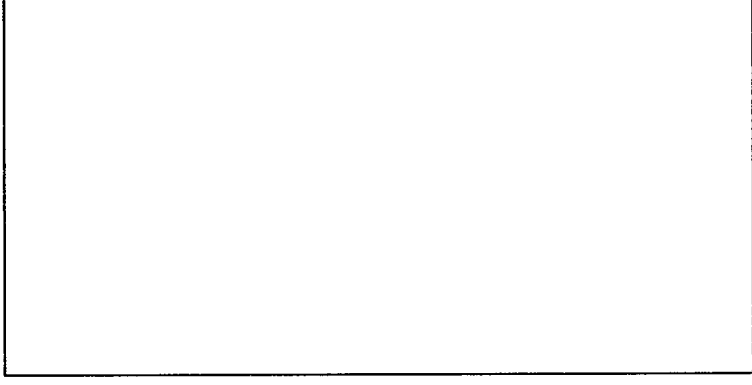
Although collaborative research and participatory action research provided the theoretical foundations for this dissertation, I found precedence for its working methods in Heron and Reason’s (2001) discussion of co-operative inquiry. They noted that co-operative inquiry could take many forms, depending on the roles and functions played by the team members. In their terms, this thesis is best defined as a “mixed use inquiry” (p. 182): it was initiated by a single researcher (myself) who was external to the culture under study (in this case four different schools) yet still involved in the issues and concerns of learning in elementary schools (due to my work in a teacher education

program). Our team worked on an “outside” inquiry, as our actions took place outside of our group meetings, yet came together “for the reflection phases to share data, make sense of it, revise their thinking and, in light of all this, plan the next action phase” (p.182). Herr and Anderson (2005) noted the inherent tension that can arise in this type of situation, stemming from between the dualities of practical/formal knowledge and the insider/outsider status of the research team. Their response, with which I concur, is to point out that “this type of dualism is not helpful as neither side has a monopoly on knowledge” (p.53). I aimed at bringing together multiple perspectives in the creation of innovative curricula – those I had developed from being immersed in an intensive study of and practice in eco-art education, and those of the teacher-researchers who were in their own classrooms every day – in hopes of creating a praxis accessible to educators in a variety of settings.

Figure 1: Kemmis and McTaggart's (2003) Action Research Spiral



I didn't realize it at the time, but the garden stones project offered a working method that I felt comfortable with – bringing together a group of people to work on an art-related project for the benefit of the community. The students learned about art and the environment, their work was permanently displayed, and our sense of community was deepened as we worked collaboratively on the project. This method proved useful in helping me to explore some of my questions – about technique, pedagogy and project management – for large-scale eco-art education projects. In hindsight I was putting many of the elements of a collaborative action research project into action – and planting the seeds for my doctoral research project in the years that followed.





Arts-informed Research

The second framework that influenced my approach to this dissertation was arts-informed research. Arts-informed research is a family of approaches to inquiry that bring together “the systematic and rigorous qualities of conventional qualitative inquiry with the artistic, disciplined, and imaginative qualities of the arts” (Cole and Knowles, 2008, p. 59). Exploring new means of conceiving meaning-making and knowledge creation is central to arts-informed research; this appeals to me, as it does to other educational researchers (Eisner, 1997; Watrin, 1999; Finley, 2003; Slattery, 2003) who have felt that traditional modes of research offer limited means for investigating and understanding arts-based learning. Slattery (2003) articulated this well:

...in the postmodern era we have the opportunity to understand schools and society from multiple perspectives, not one of which contains the entire picture. Arts-based educational research offers another vision and another opportunity for growth. I prefer to advocate for multiplicity in educational research to ensure fresh insights and to subvert exclusionary boundaries... (p. 193).

Eisner (1997) has identified the potential benefits that arts-based educational research can offer, particularly to those researchers with an interest in the arts. He believes that it forces a re-examination of the assumptions and values that underlie social science-based research, many of which run counter to the ways the arts are involved in education. By better integrating the arts into a new paradigm of research, art educators are offered a better means to “fit their interests, [be] congruent with what they wish to study, and play to their strengths” (p. 265). Just as importantly, he posited that the exploration and use of narrative in arts-informed research provides an opportunity for art educators to better tell their stories and those of their research participants. Bochner and Ellis (2003) extended this notion beyond that of the participants; they saw arts-informed

approaches as a means to improve participation on the part of the research audience, as “the reader must move back and forth across multiple levels of reflections, drawings, and reactions, becoming an active participant in the dialogue, experiencing, feeling, and associating with the work rather than standing apart from it” (p. 510).

Working with these perspectives in mind, I worked to incorporate arts-informed research strategies into this dissertation. Although the team discussed the possibility of including an artistic component of their own making in the data collection phase (for example, by recording their observations or reflections in the form of drawings or other artworks), ultimately none chose to go this route.¹⁷ Yet much of the data from the teacher-researchers’ lessons did result in artworks, not made by them, but created by their students; these serve well to document what transpired during the lessons. I also choose an arts-informed approach in the data analysis and interpretation phases of this project as I believe that it is important to interpret and present data through more creative means than a traditional text-based mode. Therefore the results of this thesis have been presented in three ways: in a formal text that reports on the study, as a textual/pictorial narrative woven throughout this text, and in a series of portraits of the teacher-researchers, presented in the form of sculptural books (photos of which are included in Chapter Four). The narrative was a means to provide multiple entry points into the dissertation via text and imagery, ones that illustrated its key themes through a more personal lens. This narrative demonstrates that not only have I immersed myself in eco-art education in a theoretical way in the course of this dissertation, but that I have also

¹⁷ Part of the hesitation on the part of the teacher-researchers may be attributed to their notions of self-identity, not seeing themselves as professional artists but as teachers and/or ‘crafters’. I purposefully chose to follow the lead of the group on this decision, so as not to apply any pressure on the team to record their data in a specific way.

incorporated it into my teaching and artistic practice as well; it has become part of my lived experience on many levels. The sculptural books, in addition to acting as an alternate means of interpretation, were also a challenge to myself as an artist: I felt strongly that I wanted to honour my belief in the power of visual culture by sharing my data in different artistic forms. My hope is that these creative inclusions will provide a unique starting point to share my dissertation with others, and potentially widen its audience beyond the traditional confines of the academy.

Methods and Procedures

The methods and procedures used in this thesis study were drawn from both of these frameworks, collaborative action research and arts-informed research. What follows is a description of the methods and procedures used as a means of ensuring a high level of transparency in the phases of research team development, data collection, data analysis and interpretation. According to Schram (2003), transparency is one of the criteria of integrity in qualitative research, and one that I aimed for in this dissertation.

Research Team

In keeping with a framework of collaborative action research, I brought together a research team of four practicing elementary teachers and myself, a university-based teacher educator. The team size was purposefully kept small to allow for an open, supportive, collegial atmosphere to be established, and to generate a suitable amount of data for analysis and synthesis. The teacher-researchers were located through my existing networks of contacts in teacher education and eco-art education in Toronto; as these team members were not involved in the initial establishment of the dissertation's

questions, it was important to locate teachers who had already indicated some interest in the area of eco-art education to ensure their full participation. I distributed a written invitation outlining the dissertation and its purposes (see Appendix A on page 268) to approximately forty educators who had attended either a summer institute or a workshop on eco-art education with me between 2002 and 2006.¹⁸ Eight teachers from the Toronto District School Board (TDSB) indicated their interest to participate; after further telephone discussions and individual meetings four committed to the thesis study. These four were forwarded a Teacher-Researcher Agreement to review and approve (see Appendix B on page 269).

The four teachers who agreed to participate in the dissertation worked in four different schools, two on the west side of Toronto, one on the south side, and another on its eastern edge.¹⁹ Dorie Preston, an experienced teacher only a few years from retirement, taught grade five in the school on the east side. She had been a generalist teacher for over three decades, with a love of art and an interest in the environment but no special training in either. Astrid Tobin shared two classes with other teachers at the southern school near the lakeshore: a grade one class in the morning, and a grade five special needs class in the afternoon. As leader of the school's EcoClub, she brought a desire to learn more about how the arts can help children learn about the environment through extracurricular activities. Karen Goodfellow and Anne Lakoff both taught in

¹⁸ The Toronto District School Board sponsored two summer institutes on eco-art education in August 2002 and August 2004. These institutes introduced teachers to a variety of concepts and pedagogies in eco-art education over four days. I was one of the co-facilitators of these institutes, along with artist/educator Julie Frost. One of the reasons I returned to the participants of these institutes (and similar types of after-school workshops) for teacher-researchers was because of the enthusiastic response I received from them for continued involvement in future projects.

¹⁹ As a means of recognizing their contributions to the development process and this research project, the teacher-researchers agreed that their real names should be used in this dissertation.

different schools in the west end of the city. Karen had a deep dedication to the arts, outdoor education and the environment at the outset, and joined the team with her grade two/three split class as a way to explore these further. Anne involved her grade five class as active participants in the project, explaining the thesis questions and asking them to help devise answers as the year unfolded. As a teacher trained in the visual arts, she articulated a desire to integrate her love of art with her attachment to the school's naturalized garden, which held a special place in her heart.

I anticipated that the four teacher-researchers, as 'insiders' of elementary school settings, would bring tacit knowledge and pedagogical expertise to the dissertation, in order to keep the development of eco-art curricula firmly grounded in the realities of classroom life. Their roles involved planning eco-art curricula individually and collaboratively, implementing this new curricula in their own classrooms with an appropriate pedagogy, observing the effects of the curricula on their students and their school environments, sharing these results with the research team, and reflecting on the experience individually and collectively. Given the cyclical nature of the collaborative action research framework, the teacher-researchers were made aware at the outset that these duties would be repeated throughout the school year.

I recognized that as the outsider on the team, I would be the only team member who was not a practicing elementary teacher (though I had worked as an itinerant art teacher in elementary school settings). This is not an uncommon composition for a collaborative action research team; in fact Herr and Anderson (2005) refer to this as an ideal form of participatory action research, where an outsider collaborates with insiders for the purposes of inquiry. But as the initiator of the dissertation, I recognized that I

would need to be sensitive to establishing an environment of reciprocity and equity between team members; I did not wish to reinforce the traditional hierarchies found between many university and school settings and their foci on theoretical/practical knowledge. I hoped that identifying the expectations of the teacher-researchers from the beginning of the thesis might help to achieve a sense of parity, ensuring that their aims were achieved as well as mine. I had also assumed that an ongoing negotiation of roles and responsibilities within the research team might also work towards this goal.

I had been forewarned of the challenges of balancing doctoral research with the collaborative action research framework: Herr and Anderson (2005) noted the struggle in action research “with the collaborative nature of the research and the individual nature of the dissertation” (p. 89). As the initiator of this thesis project, I understood from the beginning that I would assume the duties of lead researcher, ensuring that data collection and analysis strategies were in place and being implemented. Due to my knowledge of art education and the eco-art movement, I also assumed that I would take on a consultative role by sharing knowledge about eco-art, art education theory, and available resources with the team. I quickly learned that the teacher-researchers looked to me to play the role of facilitator for group meetings, which entailed some administrative and supervisory duties. While I had no problem performing this range of duties, I had hoped they might become comfortable sharing the facilitator role as the year progressed, thereby taking more responsibility for directing the content and/or approach of the meetings and leading to a less hierarchical collaboration over the year.

Questions

In many variants of action research, the questions for the study are devised by the research team as a whole; in this project, I established the key questions (see fig. 2 on page 86) at the outset, prior to the establishment of the research team. This was done purposefully for two reasons. As this was the heart of my dissertation, I required the approval of my thesis committee before proceeding; it seemed unlikely that this committee would approve a set of methods without the identification of the key questions at the beginning of the process. Secondly, as eco-art education is an emerging discipline, I was not aware of any local elementary educators who had already developed curricula (and their own questions) in this area, even though some teachers had expressed an interest to me about exploring the topic collaboratively. Providing an opportunity for teachers to work together on just such an undertaking not only removed some of their hesitation in entering new territory alone, but also presented a way for them to contribute to an innovative curriculum development project and continue their professional development in the area in a low risk environment. By choosing a framework with an emergent design, I left room for the team to add their own individual or collective questions to these initial key questions as the thesis progressed. I appreciated that it was likely that their reasons for joining the research team may not have been driven as deeply by these initial questions as was I, and therefore new questions could easily be added to the thesis to keep their motivation and participation steady as the year unfolded.

Figure 2: Key Questions of This Dissertation

What does eco-art education look like in elementary classrooms?

What curricular content and structure resonates with teachers and students in eco-art lessons?

Is a specific pedagogy necessary to present eco-art content, and if so, what are its features?

How do teachers' definitions of eco-art education relate to their practice of it?

How do teachers weave art and environmental education together to learn about environmental issues and concepts?

There is no doubt that these key questions emphasized the roles and experiences of teachers in the process of defining, developing and implementing eco-art education in elementary classrooms. This is not to deny the roles others play in the success of such a complex undertaking; undoubtedly students, parents, administrators, instructional leaders and community members also make contributions to its curricular implementation. However it was beyond the scope of this thesis to study all of these stakeholders simultaneously. Aiming for depth rather than breadth, I examined the experiences of teachers in this thesis to better understand their perceptions of the benefits, challenges, and barriers of eco-art education in the curriculum development process. As teachers are central to the creation and implementation of new curricula, they were the most logical stakeholder group on which to focus this dissertation.

Data Collection

In the selection of the data collection methods, I was guided by Mills' (2003) tripartite model of *experiencing*, *enquiring*, and *examining*. *Experiencing* the processes of curriculum development and action research was an essential component of the thesis for all members of the team, collectively in team meetings and individually in their own classrooms. In this the team negotiated the methods for data collection of their experiences: the two main strategies were research journals and photographs. Each journal was as unique as its writer: while some were short and to the point, focusing on the basic details of lessons, others were longer and more complex, recording emotional responses and sometimes including work from students. Field notes complemented these journals on the occasions where I was a passive observer of their classroom experiences. The decision about field visits was left up to each teacher-researcher and in some cases there seemed to be some reluctance for me to observe their eco-art lessons. I think this stemmed in part from their desire for me to participate in, rather than simply observe, the lessons; in other cases it was due to difficulties in scheduling.

Enquiring, the process of asking questions, was of course central to the data collection methods in this thesis. A written questionnaire was used to establish the team's entry points at the outset; it aimed at collecting basic information on each teacher-researcher's background and expectations for her involvement (see Appendix C on page 271). Although it was useful in collecting this information, using this questionnaire at the start, rather than an interview, may have inadvertently reinforced my role as 'lead researcher' in the early stages of the project, and undermined my desire for the teacher-researchers to conceive of themselves as sharing the researcher role from the outset.

This impacted on the second basis for *enquiry*, the focus group meetings that took place throughout the year. We met as a team five times, meeting at the university (a central location in the city) in the evenings, once their teaching duties had ended for the day; each meeting lasted two to three hours. While I would have liked the team to play a more active role in identifying the questions or agenda for these meetings, I found that the key questions and agenda were often initiated by me, with the teacher-researchers raising secondary questions as each meeting unfolded. This did not prove to be a hindrance overall, as everyone had ample opportunity to ask, discuss or answer questions as the year progressed. These meetings were audiotaped and later transcribed for analysis. And finally team member's journals also provided a individual method of recording and answering their own and others' questions to complement the collective means of enquiry.

Examining, which Mills (2003) defines as the "using and making of records" (p. 66), was done informally and formally as a part of this thesis. As *examination* is a necessary part of the reflexivity inherent to action research, team members were engaged individually in this process before, during and after each new lesson in their classes, and these thoughts were captured in their research journals or in the transcripts of the focus group meetings. Some took an active role in the creation of photographs of their lessons as an alternative means for recording and later examining the lessons; I also took photographs during my class visits. These were reviewed at team meetings throughout the year, and used as a way to share experiences, initiate discussion on the issues at hand, and reflect on the actions that had already been taken.

For an overview of the data collection methods used in this thesis, refer to figure 3 (on page 88). The timing and frequency of data collection methods used in the thesis are summarized in a table in Appendix D (on page 272).

Overall the data collection methods went as planned, resulting in a rich set of textual and visual data. Only one component that was planned remained undone; I had hoped to conduct individual exit interviews with each teacher-researcher at the end of the year, but all felt that they had said what needed to be said during our last team meeting and through their journals. All of the journals did contain a year-end reflection on their experiences, and at this point in the year I think the teacher-researchers felt that their immersion in eco-art education was complete. I respected their opinions on this last component, and instead turned to the existing data set as the basis for analysis and interpretation.

Figure 3: Overview of Data Collection Methods

Pre-Questionnaire: A written questionnaire was used to establish the team's entry points into the study. It aimed at initiating reflexivity about their previous experiences in teaching generally, in art and environmental education more specifically, and with the action research methodology itself. (Refer to Appendix C on page 271 for a copy of this questionnaire). It was also intended to help determine what support the team needed to proceed in the initial stages of the project.

Meeting Notes: Regular team meetings throughout the year formed the basis for ongoing enquiry and provided a rich source of data. The team decided on the frequency, duration and date of these meetings. They provided an opportunity to work through conceptual, theoretical and practical issues related to curriculum development, but also served as the means through which team members built a sense of community and shared ideas, successes, and concerns. Dialogue at these meetings was audiotaped and later transcribed; over one hundred and thirty pages of transcription were collected as a record of these meetings.

Individual Journals: Each team member maintained a written record of their experiences in eco-art education throughout the year. Some of the entries are descriptive, capturing the details of eco-art lessons, while others are more affective, describing the author's feelings about events and experiences. The journals range in length from six to thirty pages. Three of the four teacher-researchers added supplementary materials to their journals, such as student quotes, worksheets, photographs, and reference materials.

Field Notes: I visited the teacher-researchers' classrooms during the 2006/7 school year on a total of ten occasions. On some visits I acted as an observer, and on others as a participant-observer. These visits provided an opportunity for first hand observation and interaction with the teacher-researchers and their students, which was recorded through field notes and photographs; reflections were made in my research journal.

Visual Data: Photographs of student artwork and students in process of eco-art lessons served as a visual record of what transpired during the sessions. These were shown when possible during the focus group meetings to initiate discussion and reflection. (Board permission and individual student permissions were secured for this aspect of data collection; please refer to Appendix E on page 273 for a copy of the permission letter submitted to students and their parents).

Data Analysis/Interpretation

In my approach to data analysis and interpretation in this action research dissertation, I was guided by Herr and Anderson's (2005) thorough introduction. They noted that data analysis begins immediately in action research and continues throughout the research spiral as it "guides further data gathering and decision-making" (p. 80). This is a complex undertaking in that "one's task is to speak out of what one has discovered thus far while holding the awareness that the data and analysis have more to offer than what one has currently had the chance to thoroughly explore" (p. 81). This is indeed what transpired in the course of this research project. The early stages of analysis began after the first focus group meeting in October 2006, and continued throughout the data collection phase that ended in June 2007. It evolved individually for the team members as well as collectively in our meetings in pairs and as a whole team, evident in the research journals and in the transcripts of our meetings. Analysis in the journals was formative and summative in nature, and transpired as a natural part of the reflexive action taken by each team member.

Herr and Anderson (2005) go on to describe some of the possible layers in analysis, including initial meaning-making, decisions regarding interventions or actions, revisiting data for deeper understandings, and member-checking: I utilized all of these analytic strategies. After each class visit or meeting I began initial attempts at meaning-making through my own journal entries; evidence of the teacher-researchers doing the same is found in their journals. I continued this process as I reviewed each transcript multiple times, both in its auditory and textual forms, to aid in deeper analysis. These reviews certainly influenced my decision-making during the course of the year, both in

interaction with the teacher-researchers and students during participatory class visits, and with the teacher-researchers in focus group meetings. Member-checking was also conducted by distributing the transcript of each meeting to the team for review before the next meeting. Each teacher-researcher was asked to clarify, correct, or add to their responses as they saw fit; in only a few instances did any of the teacher-researchers request changes to the transcripts (typically to correct errors or fill in missing information).

I revisited the data again as I employed the traditional qualitative analysis techniques of coding transcribed and written data via thematic analysis and concept-mapping. To aid in this I utilized the qualitative analysis software program 'NVivo', which proved to be a useful mechanism for sorting data and creating memos about emerging patterns and themes (for a list of the coding categories refer to Appendix F on page 274). Perhaps not surprisingly given their busy schedules, the teacher-researchers chose not to be involved in this aspect of the analysis. Although they were involved in some analysis in the iterative cycles of the thesis project throughout the year (as evidenced in their journals) and with the concept-mapping of their lessons (found in Chapter Four), the more detailed and structured approaches to analysis seemed to hold little interest for them. This is most likely a manifestation of one of the tensions of dissertation work and collaborative action research (Herr and Anderson, 2005); they were satisfied with their roles in the curriculum development process, and saw the formal analysis and reporting as part of the dissertation work, which was perceived as my responsibility.

Harry Wolcott (1994) and Geoffrey Mills (2003) provided direction in how I undertook the interpretation of the data for this thesis. Wolcott (1994) defined interpretation as addressing “processual questions of meanings and contexts: ‘How does it all mean?’ ‘What is to be made of it all?’” (p. 12). Their interpretative techniques were ones I found useful and therefore employed: connecting the findings to the team members’ personal experiences; contextualizing the findings in the related literature; engaging in discourse with critical friends; extending the analysis by asking questions; and relating to theoretical groundings. These techniques required reading and revisiting the data multiple times, reviewing the thematic analysis I had undertaken and comparing its results with what I knew about the teacher-researchers and my own journal and memos, as well as setting these in relation to the existing theories on eco-art education. These processes resulted in the identification of patterns in the teacher-researchers’ practices in terms of inspiration, links to environmental learning, definitions of eco-art education and pedagogical strategies. It also led to a discussion of the potential benefits, challenges and barriers to eco-art education for elementary educators, as well as a range of insights into curriculum development in this area.

I also utilized arts-informed research strategies to deepen the interpretative process and frame the data in a variety of ways (as imagery as well as text). Writing my own narrative that was woven throughout the formal text of the dissertation provided the means to connect the personal with the professional by drawing parallels between my own experiences in guerilla gardening and those of the teacher-researchers as part of the thesis. I also found that translating text-based information into visual and sculptural formats engaged my mind, body and heart simultaneously, forcing me to get to the

essence of what I intuitively felt were most important about the teacher-researchers and their eco-art programs. My hope is that this may open up the interpretation(s) to a wider set of audiences, and ensure that the findings get disseminated beyond the walls of the academy.

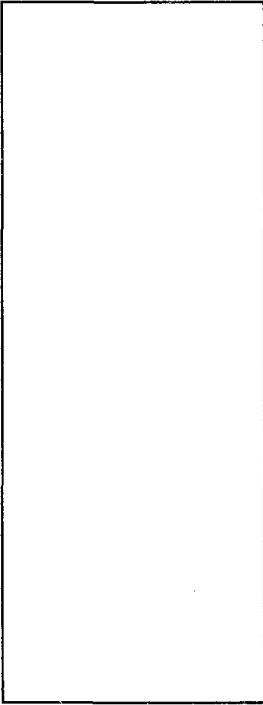
Integrity

It was important in my mind to ensure the overall integrity of this dissertation from the start. Its overall aim, as Schram (2003) points out, should be trustworthiness, to conduct a study in a competent, ethical manner. In this, the qualities of accuracy, plausibility, utility and transparency (cited by Schram) have informed the methods of this thesis. I began to work towards these qualities by submitting the project's proposal to two ethical review committees (at Concordia University and at the Toronto District School Board) to ensure the basics of an ethical approach were in place (refer to Appendix G on page 276 for a copy of the latter permission). In aiming for transparency, team members were made aware of the potential benefits and risks associated with their participation in this thesis project (refer to Appendix B on page 269 for a copy of the Teacher-Researcher Agreement) at the outset and were given the choice to withdraw at any time should the project prove untenable for them.

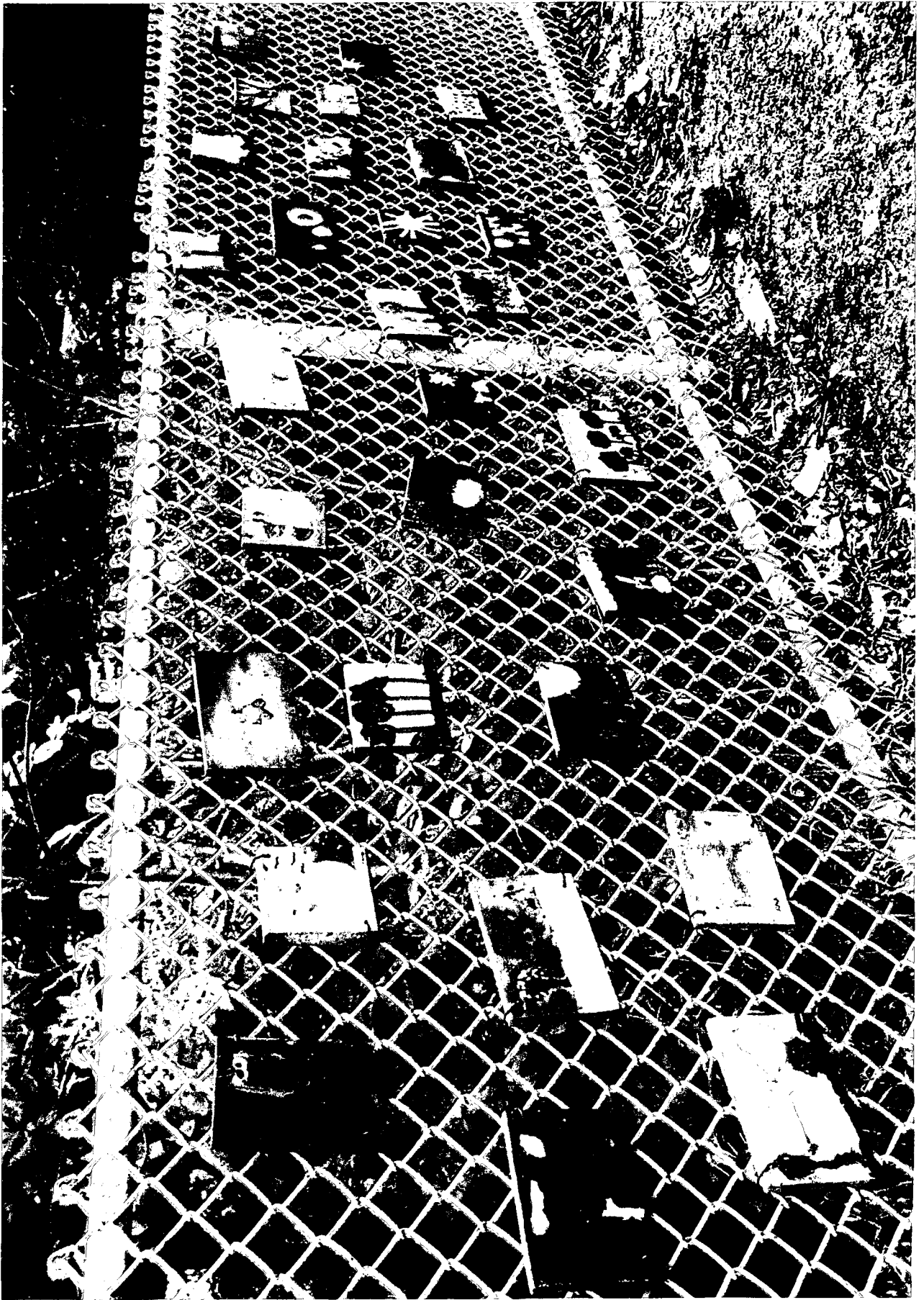
Herr and Anderson (2005) further developed the concept of integrity by asking action researchers to consider how the quality of their research will be evaluated before a study starts. I considered traditional positivist definitions of rigour (such as validity, reliability and generalizability) and realized, like others, that they are of limited use to action and arts-informed research approaches in their usual forms. Slattery (2003) provided support for my concerns by wondering

...if maybe we should be asking an entirely different set of questions. Can we evaluate arts-informed research from a postmodern perspective and encourage border crossing, social activism, multiplicity, unauthorized methods, and unconventional styles? Might our purpose be to evoke and provoke all research in education? (p. 196).

Herr and Anderson (2005) took these types of questions to heart by offering a new set of criteria for integrity more suitable to action research. They describe the five goals of action research as being the generation of new knowledge; the achievement of action-oriented outcomes; the education of researcher and participants; results relevant to the local setting; and a sound and appropriate research methodology. I have used these as benchmarks, and will discuss them in more detail as I conclude this dissertation. Certainly this chapter has aimed to make clear the research methodology of this thesis to demonstrate that it is indeed sound and appropriate; the following chapters will provide evidence that all of Herr and Anderson's goals have been reached in the results, knowledge, education and action that this dissertation has instigated.



It didn't start out as research, or even as guerilla gardening, even though these are now the lenses through which I see my creative efforts in guerilla art gardening at the school. Graduate studies has helped to clarify in my mind that whatever creative act I am engaged in is a form of research which can play out in my professional life just as richly as can the more traditional academic pursuits of writing and teaching. I find this amusing, as I came back to grad school to improve my theoretical understandings, not my artistic endeavours; I love that I found a place in which to grow both simultaneously over the past four years.



CHAPTER 4: GROWING ECO-ART EDUCATION

It may well be that because no one stands outside the [environmental] scene, no one has the distance to make art from it. But we've got to try. Art, like religion, is one of the ways we digest what is happening to us, make the sense out of it that proceeds to action. Otherwise, the only role left to us -- noble, but also enraging in its impotence -- is simply to pay witness.

(McKibben, 2005, n.p.)

This research is firmly rooted in the experiences of its teacher-researchers, so its story is grounded in their stories. Each of these educators brought a wealth of experience to this inquiry and willingly participated in the development of eco-art curricula. Not surprisingly each of these women are active gardeners, both metaphorically in their schools and physically in their own gardens – what they do best is nurture growth, whatever the context they are working in. Each year in their schools they cultivate rich environments in which their students can thrive by creating experiences that engage and excite, taking teaching and learning well beyond the basics of the provincial curriculum. The teachers hold themselves to the same high level of expectations that they ask of their students – each gives countless hours of service to their schools, above and beyond their regular teaching duties. And like master gardeners, each embodies a high degree of dedication and optimism, starting fresh each year with the belief that the more they learn as teachers, the more the students in their classes will grow and benefit as well.

Portraits of Teacher-Researchers

The research team consisted of four elementary teachers-researchers and myself, a university-based art educator. I have already shared some of my background as part of the description of my research paradigm at the start of the second chapter (and continue

to do so throughout this dissertation in the form of a series of personal narratives).

Therefore what follows are textual portraits of the other team members in order to better contextualize the data gathered through their participation in this thesis project.

Anne Lakoff

Anne's love of nature and connection to her school garden are defining features of her involvement in this inquiry. She works at Runnymede Jr. & Sr. Public School, a large elementary school in a middle class neighbourhood, where her third floor classroom overlooks the south end of the school's leafy garden. She has been teaching French immersion at the school for the past thirteen years; this particular year she had a grade five class of twenty-eight students. She has an unofficial leadership role at the school as she steers many committees and extracurricular clubs, sharing with others her considerable skills, energy and enthusiasm for school initiatives.

Anne's commitment to teaching and learning is evident in her ongoing involvement in professional development. Originally from Montreal, she began life as an art teacher, and completed most of the requirements of a Master's degree in art education before a move to Ontario and a growing family interceded. Anne has continued to be an active and eager learner, however, taking a continuous string of Additional Qualification courses, seminars and workshops over the years. In addition to becoming a FSL specialist¹⁹, she has also taken many workshops in Environmental Studies, Language Arts, Science and the Visual Arts. In 2002 she spent a week at the Sightseeing Summer Institute offered by the TDSB, where she learned about environmentally-inspired art-making. She has participated in research projects in the past, as well as served on various

¹⁹ FSL is an acronym for 'French as a Second Language'.

curriculum development teams with the school board. Her love of art remains central, however, as she made clear early in the course of this study: “The teaching (and learning!) of art is what nourishes the love of my career. I enthusiastically seek out ways of further developing my background in art education and to keep my approaches to it fresh”.

Anne’s second (though not secondary) passion is for nature. In 1991, while a parent at the school, she made a commitment to starting and maintaining a naturalized garden as an integral part of the schoolyard. Known as the Hillside Garden, it is situated on a long, narrow slope behind the school building. Since becoming a teacher at the school, Anne has collaborated with a series of parent volunteers, teachers and students over the years to cultivate and improve this garden, which is now a lush space full of indigenous shrubs, grasses, trees and wildlife. She has modeled its use for others in the school by frequently utilizing it as a site for teaching science, language arts, drama, outdoor education, and of course, visual arts. Before this study started, she noted having used it as a source of inspiration for drawings, murals, printmaking and watercolours. It is here that she can be most often heard reciting her favourite phrase about learning in the garden: “It just doesn’t get better than this!”

Astrid Tobin

Astrid has a deeply felt commitment to teaching children about environmental issues and challenges. She had worked as an elementary teacher for eight years before coming to Kew Beach Jr. Public School in 2001, a school found close to Lake Ontario on the east side of Toronto. She has taught every grade from kindergarten to grade eight over the course of her teaching career, demonstrating her love of learning as this requires

a significant amount of curricular development each year. This commitment to learning has also manifested itself outside the classroom, and is evidenced by her Masters in Education, her qualifications as a Special Education specialist, and her attendance at numerous professional development workshops offered by the school board.

This year Astrid had a unique posting, with half of her day in a grade one class of twenty four students (where she was responsible for teaching science, math and drama), and the other half in a grade five/six class of ten special needs children. In addition she had a number of responsibilities on top of her teaching. She was the Primary Division Chair, acted as a lead teacher on the school's report card system, (helping to edit and organize other teachers' digital submissions), and was a member of the school's Success Team. She co-founded the school's EcoClub three years ago, and led the lunch-time weekly meetings for about thirty children along with three other colleagues. While indicative of her dedication to supporting her students' and colleagues' learning, this jam-packed schedule also gave a clue as to Astrid's biggest challenge this year: a shortage of time.

Karen Goodfellow

Karen's strong connection to the earth and the arts has led her on an intriguing journey as a teacher over her thirteen years in the profession. While she was teaching a grade 2/3 class at Annette Street Public School in a middle class neighbourhood in Toronto's west end during this study, she began her career on a remote, fly-in First Nations reserve in Northern Ontario. She nurtured her connection to nature there, reinforcing the values instilled as a child at the outdoor education centres where her parents worked. She learned to live lightly on the earth on the reserve, working with

Dorie Preston

Dorie's quiet demeanor masks a deep dedication to teaching and learning. An elementary educator for over three decades, her enthusiasm for teaching does not appear to have diminished as she is eager to continue her own learning to improve her classroom practice. Despite her long involvement in elementary education, she is youthful in appearance and attitude, and modest about her achievements. She has taught children in most grades at the elementary level (kindergarten to grade seven) and worked in library resource over her thirty-three years in education. Although only a few years away from retirement, she is not sure she's ready to resign from teaching quite yet.

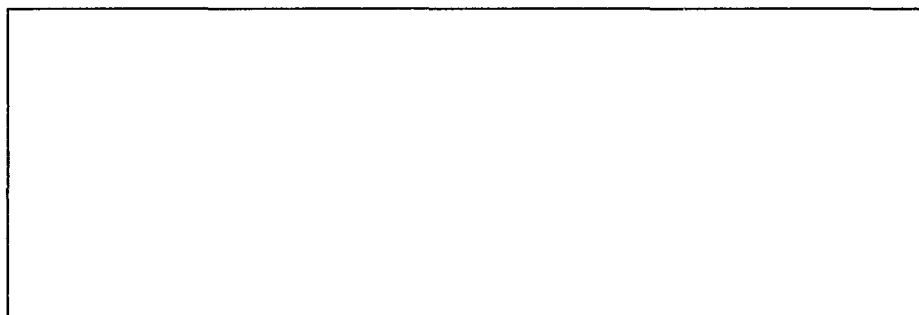
Dorie is an avid life-long learner, and models this for her students. This year she had a grade five class of thirty students, and was taking a drumming workshop in addition to her involvement in this thesis study so that she could share new ideas and techniques with her students. She has taken a wide variety of professional development workshops over the years: Additional Qualification courses as a Library Resource specialist, many visual arts workshops with the school board (including the Sightseeing Summer Institute in 2004), and a range of arts workshops with the Learning Partnership, the Textile Museum, the Royal Conservatory and the National Film Board. At the beginning of the study she saw herself as a generalist teacher with little experience in environmental education, eco-art or action research, and stated that she wasn't sure what she could bring to the team, underplaying the wealth of experience and enthusiasm she brings to any learning she undertakes.

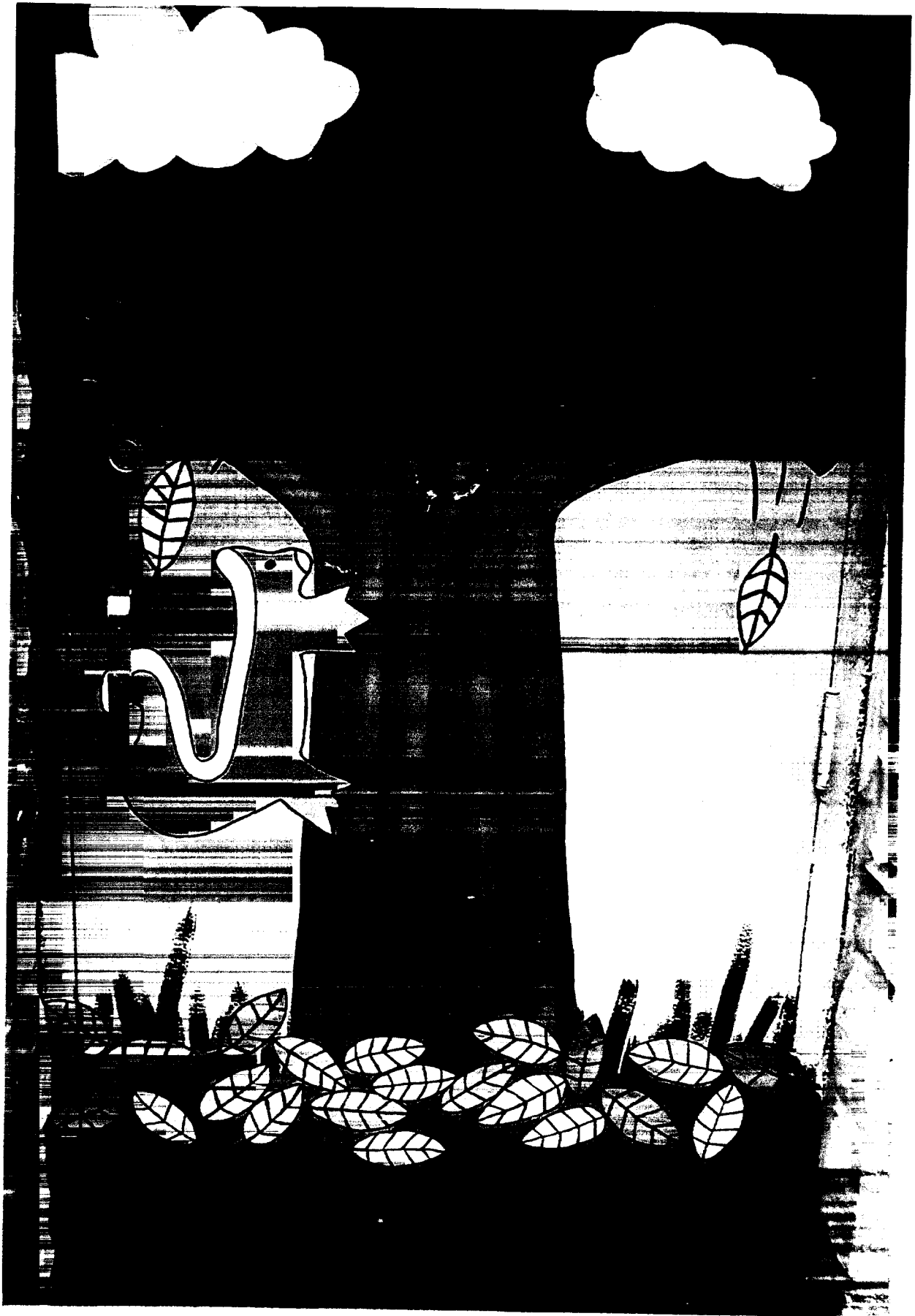
nature-based materials to teach all subjects areas, including art. She has also spent a summer working in an urban outdoor education centre, and a year in a TDSB alternative school program for truant students in grades six to ten.

Her passion for teaching is integrally tied to her personal engagement with learning. Karen has taught in grades 2 to 10 over the years and been an avid learner herself, doing many Additional Qualification courses in Special Education, Drama, and ESL. She has participated in curriculum writing for Canador College and Nipissing University, led adult education programs for Native students, as well as developed her skills in Tribes Training.

Karen's love of art stems from her grade thirteen art classes and summer camps as a teenager; it has remained a constant in her life as an adult. She has taken classes in pottery, textiles, weaving, basketry and book-making, as well as learning leather-work and beading from native elders. In 2004 she spent a week at the Sightseeing Summer Institute offered by the TDSB (along with Dorie Preston), where she learned about environmentally-inspired art-making. Her interest in eco-art runs deeper than this however, as she recognizes that much of the art-making she did with her native students on the reserve (and her own children more recently) could be put into this category. Although she had little previous experience in action research before joining this inquiry, she cited professional growth and personal interest as her main motivations, as well as her feelings of being "*PASSIONATE about THE EARTH, TEACHING and the ARTS!*" [sic]

My gut instincts in defining eco-art have been to keep it close to home – in its choice of imagery, its environmental purpose or its choice of materials. Intuitively the first guerilla gardening project that I tried in the Runnymede yard the year before the garden stones project met some of these criteria. The school has a play area just for primary children, full of climbers and slides. The entrance doors to their classrooms, also in this area, were the target of on-going graffiti. Parents and teachers were upset about this, as the words and images were often offensive. So I approached a few primary classes and asked them for drawings of the school garden in different seasons. This got them out into the garden with their teachers to look closely at what was there. I worked with another parent to transfer the children's drawings onto the school doors. We were pleased to discover that the paintings significantly reduced the amount of graffiti the doors received – it seems even taggers avoid defacing others' paintings. In this we learned that children love to be surrounded by the fruits of their own creativity, and that guerilla art gardening can be used to grow a more positive atmosphere in schoolyards.





Starting Points

The teacher-researchers brought a range of starting points to this thesis study, from their expectations, to their values, to their definitions of eco-art education. This section describes these starting points as a means of connecting their past, illustrated in the portraits, to what occurred in their classrooms as part of the curriculum development process.

Expectations

As a team of self-professed life long learners and teachers, we shared similar expectations from the outset of the project: to learn more about eco-art education and to share our learning with others. A commitment to learning as an integral part of teaching ran deep in all of us, as evidenced by the long list of professional development activities we had been engaged with over the years. Like the others, Dorie was modest about her dedication to professional development, simply saying “I’m always curious to learn new stuff”. Anne was more adamant: “I’ll just stop teaching the day I’m not learning anything more”, capturing well the sentiments of all on the team.

While on-going learning was an expectation that we had for our involvement in the study, sharing our learning with others was also key. For some, sharing the results of the inquiry meant looking to the students in their classroom; for example, Dorie saw her involvement as a way to get new ideas for art projects for her students. Others saw the potential for sharing beyond the boundaries of their classroom walls. Astrid voiced a desire to share her learning with her EcoClub at the school; she hoped that the project might inject new ideas into her work with her students and her colleagues in this context. Anne expected it could function in a similar way for her school’s garden; she saw the

research not only as an impetus to get her classes out into the school garden more often, but also as a way to model this for other teachers in the school.

Anne also anticipated that the study might provide the means to initiate a discussion with her principal about art education and environmental issues. Certainly Karen shared this expectation with Anne: she hoped to use it to raise interest in learning about the environment at her school, which she saw as important for “more children and teachers feeling confident exploring, creating eco-art and developing stewardship of the earth”. She felt strongly that more teachers need to take an active role in this,

...because we've stopped teaching environmental literacy for so long, and if we want to keep living and to pass this place on to our kids, and our grandchildren and their grandchildren, then we need to be teaching it and everyone needs to be teaching it.

I agreed with Karen in this regard, and wanted to reinforce that the visual arts had an important role to play in developing environmental literacy. However I had a lack of confidence in the ability of modernist approaches to art education to fulfill this mandate, which I voiced in the first team meeting:

...it was this feeling that that's not going to be enough any more, that the world is crumbling — that's what it felt like, you know, at 9/11 — and art ed has got a lot more to do because I can't keep teaching just traditional [art] theory any more. Art has got to make the world a better place or I can't do it any more”.

Another expectation heard from the teacher-researchers was a desire to work collaboratively with other educators in their pursuit of new knowledge in eco-art education. Anne stated that she saw “a possibility for a group of like-minded people to pool their experiences in order to solidify a greater understanding of eco-art and its importance in the school curriculum”. For Astrid, it was a desire to be involved in a “professional dialogue” with colleagues about art and eco-art that brought her to the

study; she expressed her desire for “being able to talk to other people about it not at the school, sort of step back and allow me to get those ideas and get the encouragement to go on”. I shared their expectation in this regard; it was also important to me to develop this curriculum^o with a group of colleagues as I draw positive energy from working with others. I had also hoped that a team environment would bring a greater range of ideas and perspectives to the development of eco-art curricula, resulting in a broader and potentially richer set of learning experiences to share with others at the end.

Interestingly, despite the wide range of experiences the team brought to the project at its outset, there was little hesitation and few expectations about pre-requisites for being involved. Only Anne had been formally trained as an art teacher; the rest of us had developed our interests in art education through teaching art in elementary classrooms. Only one team member, Dorie, expressed concerns about what she could bring: “I'm not sure if I'd be a good fit for your group...I'd like to offer my insights or attempt suggested lessons with my children, however I'm not sure if I have enough to offer that you don't already know/have!” This concern proved unfounded; although it spoke to her lack of confidence in the initial stages of the project, she went on to amply demonstrate that no formal training is needed to create a vibrant and varied eco-art curriculum.

Connecting Past with Present

Our first meeting was a time for sharing backgrounds, definitions, and resources, setting the tone for cooperation and co-learning from the start. It was obvious from the first introductions that the team was already in reflexive mode, as many were linking their past experiences in teaching and learning to their choice to become involved in the

study. While Anne noted her background in teaching high school art in Montreal, she spent more time in her introduction highlighting her connection to her school's naturalized garden. This was telling, as her love of this garden would prove to be influential in her lesson-planning throughout the year. Karen and Astrid were also quick to describe their affinity for the natural world; they both identified themselves as the 'tree-huggers' in their schools, the ones leading environmental education initiatives like the EcoClub or the Earth Day assemblies. Dorie introduced herself via her connections to teaching art, and admitted to being called 'the craft operator' at her school:

I love teaching art so try and integrate every subject into art. So Thursday morning in my class is studio time, we spend the whole morning just doing Art. We put on the music and I love that and the kids love that.

Despite little formal training in this area, Dorie believed deeply in this work, as did the others in terms of outdoor and environmental learning.

The first meeting also served as a sharing about what the team had done in art or environmental learning in the past. Each of the teacher-researchers broached this in a different way: Anne remembered a mentor from years earlier who had modeled how to use art education to raise awareness about social issues. Astrid shared some of the lessons and artists she had used to activate learning in her classes or the EcoClub. Karen discussed the inspiration she found in natural materials, and humourously noted that she is known at her school for her extensive twig collection. Dorie described her use of the Internet as a reference point, as well as National Film Board films that she had used in the past. (Refer to Appendix H on page 277 for a list of the resources recommended or used throughout the study). I introduced some starting points in terms of the related literature by distributing copies of articles by Lankford (1997), Birt, Krug and Sheridan (1997),

Ulbricht (1998) and one I had written (Inwood, 2003). I also provided a copy of the TDSB's *Organizing Principles for Environmental Literacy*, which I had found useful in thinking about environmental education in the past (refer to Appendix I on page 279 for a copy of this).

This sharing demonstrated that each team member had already considered some of her past teaching and learning experiences in light of eco-art education and was starting to assess whether they fit into the parameters for eco-art. Although discussions about how to define eco-art didn't begin in depth until the second meeting, it was evident that a process of reflection had already been started independently, a positive sign that one stage of the action research cycle was already underway (interestingly out of the order of *plan-act-observe-reflect* that Lewin (1948) had originally conceptualized). This initial sharing was important as it set the tone for the rest of the team meetings for the year; each team member gave freely of her ideas, resources and experiences, and encouraged others to make them their own. There were no reservations or hesitations; this team shared regularly and generously throughout the course of the study.

Definitions

The discussions in the team's first two meetings focused to some degree on definitions – what was eco-art, and did our definitions impact on designing eco-art lessons? Karen traced the roots of her definition of eco-art back to her experiences living in northern Ontario. She realized in retrospect that she would

...do Cree culture lessons tied into the earth and we'd go for hikes down to the river and collect fossils and rocks and do art with that. So it was just, without knowing the key phrase 'eco-art', I suppose, it was absolutely eco-art.

She also understood the role she would play in defining eco-art with her students: “I think it was important for me to set the tone at the beginning, that eco-art is something that I value personally and to get them valuing nature and putting a message behind it”. This statement, from the second meeting, demonstrated her belief that eco-art not only connects closely to the natural world, but that it contains a message. These would be recurring discussion points for these teachers and their students over the course of the year.

Anne shared Karen’s definition that eco-art is integrally connected to the natural world; for her this connection was manifested by teaching in the school garden. Her lessons stemmed from her love of this space, and her belief in its power to get children engaged with environmental concepts and issues. Of this she said:

I think sense of place is another really important part of that whole definition of eco-art. Maybe, you know, just in terms of getting the kids to really respect and appreciate the neighbourhood and the environment that's closest to them... if through your teaching, through activities that you do, you can help kids to develop the real sense that 'this is where I belong', 'this means so much to me that I will never do anything to destroy it'.

Her definition was closely related to place and to purpose; it wasn’t just about taking her class outside, but about affectively connecting them to the natural world in hopes that they would grow to respect it and protect it in future.

Astrid had similar goals; from the start she hoped to integrate an art project into her school’s garden. She was successful in this, involving the entire school in a large scale mural to cover a concrete wall on one side of the garden. She also did a few smaller projects with the students in her EcoClub, using seeds, leaves and paper. These projects, though different in scale, demonstrated a view of eco-art that was based on traditional

types of art projects with an embedded environmental meaning. Yet she was also the first in the group to raise the possibility of incorporating all of the arts into a definition of eco-arts; she felt strongly that music, drama and dance all had roles to play in improving environmental literacy in children.

Dorie's definition of eco-art was realized through her classroom practice, rather than the extra-curricular projects that were the focus of Astrid's efforts. She noted that while some of her understanding of what eco-art was came from her time in the Sightseeing Summer Institute two years earlier, she had needed to give herself a refresher (via an Internet search) about what eco-art was before the study began. At times her definition was aligned with traditional approaches to art through her choice of materials and techniques; her class created many drawings, paintings and sculptures over the course of the year, using commonly found classroom materials such as tempera paints, watercolours, and collage materials. These were interspersed with more experimental projects, including handmade paper (using banana peels, fur and seeds), food art, ice sculptures, and nature installations; experimentation became integral to her definition as the year progressed.

It was evident that all of the team shared a belief that eco-art education in elementary classrooms can and should have a strong connection to the natural world. This connection could be made through the use of images from nature to inspire a lesson (as was found in the creation of leaf batiks or watercolours of flowers), or by utilizing natural materials for artworks, as seen in the sand drawings or ice sculptures. This relationship with nature could also be developed through the use of natural processes for

art-making, like the sculptures made of natural elements in the Humber River Valley, that were left to biodegrade naturally on site.

This approach to defining eco-art had a noticeable impact on the students in the teacher-researchers' classrooms; their definitions of eco-art, perhaps not surprisingly, were closely linked to the use of natural images, materials, and processes. Many of the teacher-researchers involved their classes in discussions about definitions of eco-art (perhaps in part to help themselves think through the concept). Saved as part of the teachers' research journals, the points the children raised demonstrate the influence of their teachers' thinking on this topic. Karen's primary students were adamant in their linking of eco-art to the natural world: one said that eco-art is "something that you do that is based on something in nature," while another narrowed this to "it is art that is made only using things from Mother Nature, stuff that was born to be used for art". Karen noted that they felt certain artworks couldn't be eco-art if the artist used tape, paint or other traditional art materials that might harm the earth. In her research journal she reflected that "my students seem to have translated our year's integrated studies into "most eco-art means no glue, no tape, no adhesives, little impact on the earth, [and] minimum consumerism". Some even went so far as to note a link with the children of early settlers and much of the art of Canada's First Nations, in terms of using materials that are easily accessible and not purchased "just for the sake of making art". One of her students, showing an understanding worthy of an undergraduate art major, defined eco-art in terms of the process: "You don't really make it, it kind of makes itself. It's more of an adventure".

Anne's students' definitions were similarly rooted in the natural world, but were also influenced by the work of artist Andy Goldsworthy, whose work they studied in depth. One said that "it is eco-art because it is not made with man-made materials. Mother Nature is its only source and inspiration". Another wrote that eco-art "does not pollute, it is entirely biological and it is made by hand". Defining eco-art became the focus of a number of class discussions as they decided whether Emily Carr's work or some of their own art projects could be classified in this way. Interestingly Dorie's students, who were less tied to the use of natural materials in their own projects, were also deeply affected by Goldsworthy, as evidenced by their definitions of eco-art. Like Anne's students, they defined eco-art by its use of natural materials and processes. Two students eloquently summed this up by writing that "eco-art flows with the way of nature".

These perspectives on defining eco-art education brought by the teacher-researchers into the study raised more questions in my mind, which I recorded in my research journal as the year progressed. Does eco-art have to be made of environmentally friendly materials? Does using found or reclaimed objects fall into this category? Does eco-art have to demonstrate a connection to the natural world? And is it eco-art if no message is apparent, but the materials are eco-friendly? Astrid demonstrated in her journal that she was struggling with similar questions about materials:

...in the EcoClub, I had all these pine cones and leaves from when my Grade 1s collected them. So we took cardboard that was in a recycling bin and they put sand on it and they glued these things to it. And they made art and they took it home and they were all excited about it. But a couple of the artworks stayed at school and I'm thinking what am I going to do with this now? You know, we just made more garbage in a way.

Astrid's entry raised questions about the nature of art education in elementary schools in general, which has traditionally worked from a 'make and take' perspective, emphasizing product over process. All of the team struggled with this issue over the course of the year: how do we continue to make art with children in a world struggling under the weight of its own refuse, when we know that those artworks will likely end up in landfill one day? One way that this contentious issue was addressed was through an ongoing discussion about whether eco-art should contain a message to rationalize its existence; if it helped to make the world a better place, could we better justify the place of 'make and takes' in the curriculum? Karen raised this issue in her journal:

I still alternate between the creation of art with natural objects, which are frequently overlooked, until someone, artist or child, intentionally alters either their state or location, causing others to take note...and the creation of art which is related to nature, to our world, art which engages the viewer, which conveys a message.

She felt strongly that including a message in art was a tool for social change; not surprisingly some of Karen's students shared this belief. Karen noted in her journal that one of her primary students said that "eco-art gives a message of many kinds. Like instead of using glue, use nature or something that will not hurt the earth". Karen agreed with this, noting in her journal that eco-art can be used

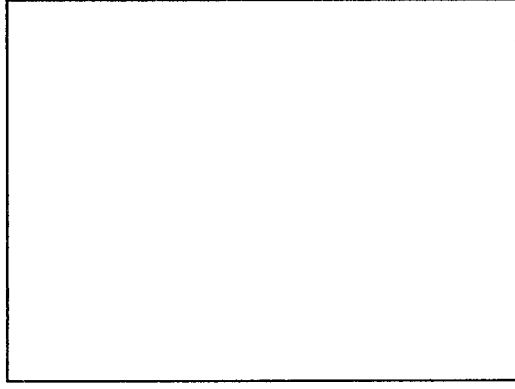
...outside the classroom to engage other people and give a very strong political environmental message. And that's really how I interpret eco-art although it's still something I'm trying to figure out, what makes eco-art different than art based on nature. But this way, it's engaging other people which art does, but it's got more of a kick to it, and...more of a message. Maybe that's totally off. All art is supposed to have a message. But you know what I'm trying to say? Like kind of a slap in the face almost, like what are we doing to this land, what are we doing to our earth? That's kind of how I look at a lot of eco-art.

I shared her thinking on this as I also raised questions about the role of meaning in eco-art in the team meetings and my own journal. After one participatory visit to one of the classes, I noted my sentiments about the role of meaning:

It did strike me, after this session, that it really isn't sufficient to introduce students to a technique such as papermaking without also giving an intro to the eco-concepts that one is trying to focus on – this content must be made explicit.

While the role of meaning in defining eco-art was a source of discussion throughout our five team meetings, what proved most intriguing for me was watching how the definition that each teacher-researcher developed came alive in her classroom over the course of the school year.

As I brought together the four teacher-researchers for this doctoral study, I felt strongly that I should be developing eco-art lessons too. I knew that I would be contributing by consulting on their curriculum planning and leading workshops in their classrooms, but I wanted to dig deeper. Without an elementary classroom of my own, I partnered with four elementary classes at Runnymede to create a set of artistic gardens for the garden beds that surround the front doors of the school. The rationale for the Artistic Gardens project was three-fold: to keep students out of these beds as they were damaging the plants (stewardship); to develop and deepen the emotional bonds between the student artists and their school grounds (sense of place); and to share learning that they had done in other areas of the curriculum with the rest of the school (cross-curricular connections). In this I discovered a way to integrate eco-art education with cross-curricular learning, and create an innovative way to showcase childrens' art and learning. Most importantly, I got to do one of the things I love - make meaningful art with elementary students that helps the local environment.





Developing Eco-Art Curriculum

Each of the teacher-researchers developed an active and unique curriculum of eco-art education throughout the year with their elementary classes. Although there were similarities in their use of materials, imagery, resources and pedagogy, each created their own inventive set of lessons; a summary of each of their programs follows as a means of tracing their creative paths.

Anne Lakoff

Anne was eager to begin at the start of the year. She was comfortable and experienced with lesson development, especially when it came to the visual arts and outdoor education. She knew from the outset what focus would drive her planning, and recorded this in her journal:

My personal year-long focus on eco-art has led me, both literally and figuratively, down the garden path and into our school's Nature Garden. My interpretation of eco-art has found its grounding in this magical place. It is here that my students have studied plants, drawn patterns of tree branches, written poetry, woven fences, created ice sculptures, collected specimens, and acted out skits. I continually take great delight in their delight in being in the garden, and can't help but announce to them each time we are out there: "It just doesn't get better than this!" I know that they agree.

Her boundless enthusiasm and energy is captured well in this quote, which many of her students find as infectious as her love of the natural world. These comments also demonstrate the importance of the school's garden in her approach to eco-art education, as well as her comfort level with integrated learning. Although her program was engaging on a variety of levels, these were two of the defining features of her curricular approach.

Over the course of the year Anne developed and/or shared eleven eco-art lessons with her class (see table 1 on page 125 for a summary chart of these lessons). Of these, six directly involved the school garden as a source of imagery, materials or as an exhibition site. She used the garden in all seasons to get her students outside to observe its growth and beauty, yet she was motivated to take their learning beyond observation, and on two occasions these lessons had a stewardship component to help address environmental challenges in the schoolyard. One of the first lessons of the year, the Grapevine ‘Basket’ Fences, saw the students collaboratively weaving two artistic fences to protect a medicine wheel garden and an oak tree seedling from being trampled in the garden (see illustration 1 and 2 on page 120). Her journal entry articulated her thinking behind the lesson:

The fence weaving was done on a great day – sunny, cool – a delicious escape from our overheated classroom. The kids are starting to get the sense that the Nature Garden is a place that is theirs. Another wonderful by-product of doing art in the garden (in addition to appealing to their sense of place, a very local one at that) is that it also targets a different strand of multiple intelligence – one that we don’t often get to address – and that is natural intelligence. One of my students in particular had just come off a very negative math experience (his mom had just talked to me that very morning about how he was sobbing thinking that he was dumb) and he completely brightened up out in the garden...even to the point that he stated emphatically, “Please don’t make us go to recess!”

Anne’s entry corresponded with my experience of this lesson, which we had planned and implemented together. My observations aligned with what Anne had noted on a number of occasions throughout the year, that learning in the garden held special appeal for those students who weren’t successful with the more traditional literacy and numeracy aspects of the curriculum. This same observation held true for the second

stewardship lesson, which had the class creating God's Eye sculptures as the basis for an artistic garden at the front of the school (see illustration 3 on page 120).

The intention of this lesson was similar to the first: to fill a raised garden bed with artworks so as to keep students out of the bed and protect the plants in it. At the same time it was intended to showcase their learning in their social studies curriculum; God's Eyes connected to their study of ancient native cultures. The students who related so well to the fence lesson also showed an affinity for the God's Eyes; many chose to create two or three instead of just one, and took pride in installing them in the garden. They enjoyed the response from the school community, which was overwhelmingly positive.

Other forays into the garden in the fall had students working on more traditional art projects. They developed drawings based on observations of leaves and trees (Leaf Drawings, 'Zoom-in' Views of Trees, and Underground/Aboveground Tree Drawings; see illustration 4 on page 120, and illustration 5 on page 123). In the latter lesson a language arts component was incorporated by having the class write poetry to complement their artworks.²⁰ They were also involved in an artist-in-the-schools workshop this term; they used leaves found in the garden to inspire colourful, hand-dyed batiks with Toronto artist Judy Pisano (see illustration 6 on page 123). Anne noted that the class enjoyed working in the garden more than inside for these lessons, but also

²⁰ Some of the poems were surprisingly eloquent and demonstrated a close observation of nature. One student wrote: "Leaves glisten through trees. Moonlight reflects off water. Owls hoot, crickets chirp, branches sway from side to side. When owl eats cricket, silence". My favourite was "A blanket of snow allows the grass to go to sleep. Winter wonderland. There's no sound anywhere. The grass is snoring softly".

Grade 5 Students' Artworks, Runnymede Jr. & Sr. Public School



Ill. 1 - Grapevine 'basket' fence around oak sapling



Ill. 2 - Grapevine 'basket' fence around Medicine Wheel garden



Ill. 3 - God's Eyes artistic garden



Ill. 4 - Student working on leaf drawings

recognized that there were challenges working outside, like having their drawing paper blown by the wind.

Despite these challenges, Anne had them back in the garden for a fifth lesson, this time in the frigid temperatures of February. Her journal entry captures her rationale well:

The introduction to our ice sculpture activity was a viewing of the Andy Goldsworthy movie entitled “Rivers and Tides”. We focused on the section where the artist creates a sinuous ice creation that, when photographed at just the opportune moment, seems as if it is lit from within. We talked about what Goldsworthy meant when he said, “The very thing that brings this sculpture to life will bring its death”. Thus, the students were introduced to the ephemeral notion of eco-art, and were quite fascinated. They also picked up on the idea that in creating this artwork, no materials were used that would impact negatively on the environment – the sculpture would simply return to the earth.

The students were very excited about creating their own ice sculpture, and spent time preparing their individual ice blocks at home. They filled a variety of plastic containers with water, and inserted natural objects such as pinecones, shells, small twigs, flower petals, leaves, and pebbles. On the day of the ice sculpture creation, we bundled ourselves up like you wouldn’t believe (it must have been the coldest day in years!) and headed out to the amphitheatre where we constructed the sculpture on one of the large stone seats. Our plan was that we would, together, assemble all of the individual ice pieces, making artistic and structural decisions along the way. Then, over time, the sculpture would melt, leaving in its wake all of the natural objects that had been imprisoned in the ice blocks. The random placement of these natural objects would also be part of the artwork. I must say that I was a bit surprised that the students really seemed to understand that this would be construed as art as well, but to their credit, I think that the Goldsworthy movie coaxed them in that direction. They are truly taken with his artwork!

This lesson was important on a variety of levels. It demonstrated Anne’s openness to try innovative lessons with the class; this one was the antithesis of a ‘make and take’ project, as the works were created off site and brought and left in the school garden. The works were purposefully left to decompose/melt on site as a part of the piece, introducing the notion of ephemerality in art-making to the class, a strategy used in

many eco-art projects. It also moved students away from the emphasis traditionally placed on individual creativity and moved them towards a more collaborative mode of art-making as they worked hard to combine their pieces into one large sculpture (see illustrations 7 and 8 on page 123). And finally it exemplified Anne's ability to use an eco-artist as the starting point for a lesson, letting Goldsworthy's artwork inspire her students in their own artistic experiments.

Anne used this latter technique a second time, but interestingly chose a more traditional artist as the starting point. Linking to an exhibit on the work of Emily Carr at the Art Gallery of Ontario, Anne asked her class to consider whether Carr's use of natural imagery was enough to classify her as an eco-artist. The students offered a range of views on this; one wrote "for me, Emily Carr is an eco-artist because of her passion of nature and the way she expresses it". Another agreed by stating "I feel what Emily Carr was thinking when she painted this – she was saying to herself this was my forest, and it's gone! She had feelings for the forest and what lived there. Yes, I think Emily Carr is an eco-artist". But others were equally adamant that she was not an eco-artist as she only depicted natural images (rather than using natural objects like Goldsworthy). One of this group took this farther by writing "No, I don't think Emily Carr is an eco-artist because she uses paint and sometimes gasoline to thin her paints and that pollutes". Anne admitted that this discussion was fascinating to follow, and was impressed with how it pushed her students to more clearly articulate their definitions of eco-art.

To end the year, Anne gave her students an open-ended assignment that linked to an existing project she has had her class do in past years. She asked them to create a design for an eco-art installation as part of a re-imagining of Toronto's waterfront,

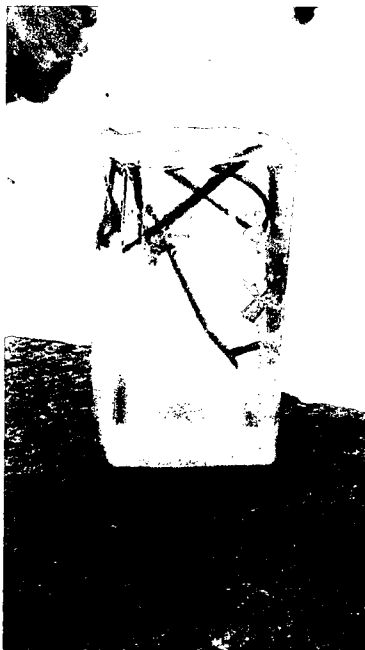
Grade 5 Students' Artworks, Runnymede Jr. & Sr. Public School



Ill. 5 - Underground/aboveground tree drawings



Ill. 6 - Leaf batiks



Ill. 7 - Ice sculpture (detail)



Ill. 8 - Ice sculpture

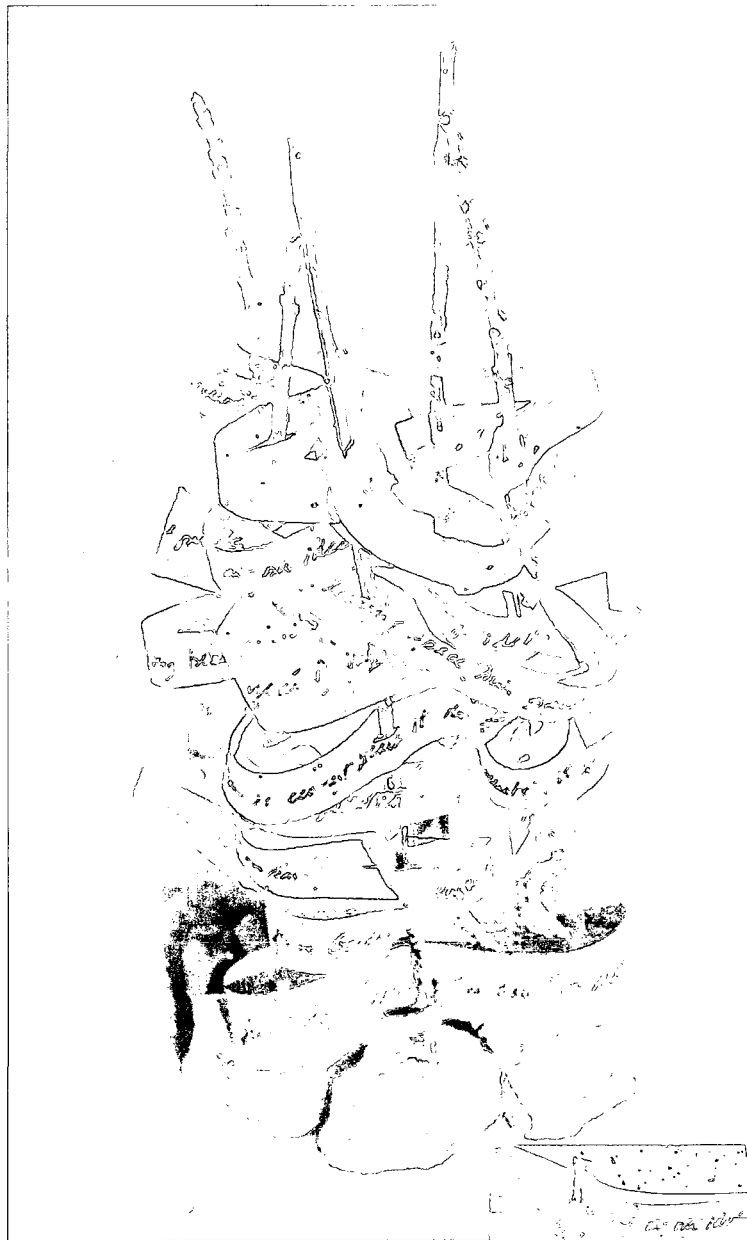
presenting their ideas in words and pictures. Almost all of the designs showed the influence of Goldsworthy's work in their proposed use of natural materials; some made direct reference to his work through their shapes and construction techniques. The designs ranged from towers made of twigs and walled gardens to rock mazes and floating flower-petal snakes. Most aimed to create an object or installation to beautify the waterfront, but a few hoped to use their work to improve natural habitats for local wildlife or send a message to viewers about the environment.

Overall, Anne developed a varied and vibrant eco-art curriculum over the course of the year. It was strongly rooted in the visual arts but integrated well with other subjects, linking to language arts, social studies, science and outdoor education. The lessons provided many opportunities to raise environmental concepts, focusing on observation and sense of place activities but also experimenting with stewardship actions. Anne was realistic about the effects of this: "I'm not sure if this awareness will translate into a life-long sensibility to environmental issues, but it sure is a great start! They are very attached to this space".

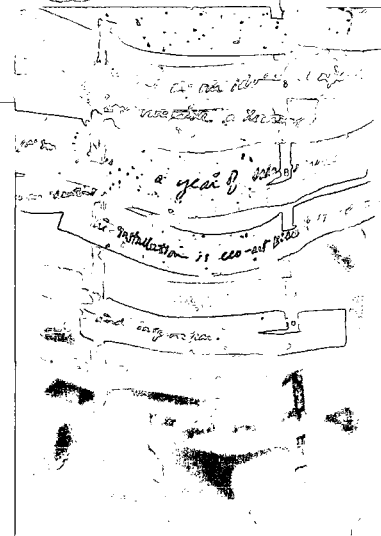
Table 1: Chart of Anne's Eco-Art Curricula

<i>Activity</i>	<i>Month</i>	<i>Timing</i>	<i>Natural Materials</i>	<i>Traditional Materials</i>	<i>Environmental Ed Links</i>	<i>Site</i>	<i>Curriculum Connections</i>
Leaf Drawings	Sept	1 hour	Leaves from the School Garden	Paper, pencils, drawing boards	Observation of in nature; natural imagery	School garden	Art, Outdoor Ed
Grapevine 'Basket' Fence	Oct	2 ½ hours	Grapevine branches	Hand tools (saws, clippers)	Stewardship; natural materials; natural process	School garden	Art, Outdoor Ed
Leaf Batik	Oct.	2 ½ hours	leaves	Fabric, wax, fabric dyes	Observation of nature; natural imagery	Class-room	Art
'Zoom-in' Views of Trees	Oct	1 hour	Trees in School Garden	Conté, pencil, paper, drawing boards	Observation of nature; natural imagery	School garden	Art, Outdoor Ed
Underground/ Aboveground Tree Drawings	Nov	1 hour	Trees	Conté, paper, pencils, colour pencils, markers	Observation of nature; natural imagery	School garden & class-room	Art, Language Arts, Outdoor Ed
Andy Goldsworthy Study	Jan	1½ hours	N/A	DVD, books	Sense of place	Class-room	Art
Ice Sculptures	Feb	2 hours	Water, leaves, pine cones, shells, berries, branches	Plastic containers, tin foil pans, food dyes	Natural materials; natural process	School garden	Art, Science
Emily Carr Study	March	2 ½ hours	N/A	DVD, books, original artworks	Understanding of one artist's reverence for nature	Class-room & Art Gallery of Ontario	Art, Language Art
Junk Art Sculptures	March	Varied	Varied	Found materials	Reuse of materials	On display in the school halls	Art
Design of Eco-Art Installation	April	1½ hours	N/A	Paper, drawing tools	Sense of place; Urban Revitalization	Class-room	Art, Social Studies
God's Eye Sculptures	May	1-2 hours	Branches	Re-used yarn & wool	Stewardship (artistic gardens); reuse of materials; spiritual aspects of nature	Class-room & school garden	Art, Social Studies

Sculptural Book: Portrait of Anne Lakoff



III. 9 – Book in closed form



III. 10 – Book in open form

Astrid Tobin

Astrid chose to develop her eco-art lessons for the EcoClub, an extracurricular student club she ran with two fellow teachers. This was done purposefully; although she was intrigued by the concept of eco-art education and eager to try her hand at curriculum development in this area, she did not have any direct responsibility for teaching art to her two classes (as the other teachers of these classes were responsible for teaching them art). But this approach presented certain challenges, as the club met only once a week for thirty minutes at a time, and had a range of activities on its plate already (including recycling, gardening, neighbourhood walks, and communication duties). A journal entry described her motivation for sharing eco-art with the club: “the idea was to teach them about the environment through the arts which is some kind of different thing. We looked at David Suzuki’s website but I’d like it to be a little more interesting, a little more creative”. In this she was referring to the traditional science-based approach taken by many environmental educators, Suzuki being Canada’s most prominent example.

From the outset she saw eco-art more broadly than the other teacher-researchers; she defined it as including all of the arts. This may have been because she had a greater level of experience in drama and music; she noted in her journal that the EcoClub also had an eco-choir headed by another colleague. They had performed a variety of environmentally-themed songs the previous year that she found inspirational. This might also have been a defense mechanism of sorts, as from the start she voiced concern in her journal about fitting art into the EcoClub timeframe:

I am inspired re the arts but not sure how to incorporate eco-art into these ideas as yet. I see eco-art as including all the arts—visual, dance, drama, music. I think visual will be the most difficult once we begin the EcoClub only because of “time”. We haven’t started EcoClub as yet because

September is such a busy month for teachers. Once it begins, however, we will eat at 11:30 and then at noon begin our activities. This leaves only a half hour for an art activity.

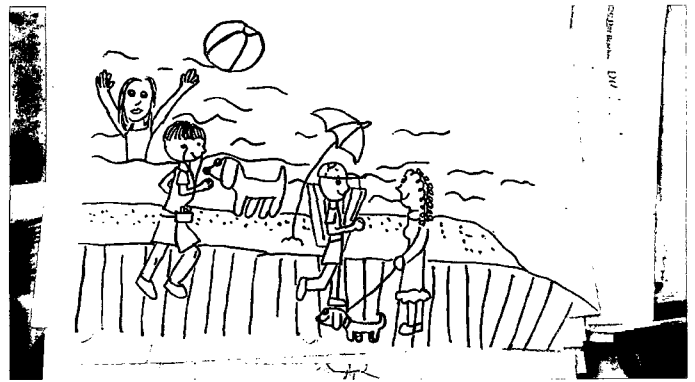
This was a telling entry, as time did indeed prove to be her greatest challenge in developing eco-art lessons over the course of the year. She was able to implement only three with the EcoClub, two studio activities and one art appreciation session (refer to table 2 on page 130 for a chart of her lessons). While all three were linked with environmental learning generally, it proved difficult to integrate these with other subjects due to the time constraints of the club meetings. The first two studio activities, done in the fall, were inspired by a book on collage by Leland and Williams (2000). These were traditional in nature: both involved ‘drawing’ with natural materials. The seed drawings (see illustration 11 on page 129) used seeds, lentils and beans glued to paper to form natural images like flowers; similarly the sand drawings used sand to form rolling hills, beaches and mountains of landscape imagery. These recalled classroom art activities favoured in the 1960s, when teachers turned to everyday materials such as dried beans, leaves, sand and dried pasta to enhance the basic materials available for their art lessons.²¹ Astrid noted that “all the students really enjoyed these activities. However, it was VERY RUSHED, and the teachers were wondering what hit them!”

²¹ These natural materials seem to have faded in popularity thanks to the mass marketing efforts of companies like Crayola, which has convinced many educators that their art program is not complete without magic markers, glue sticks and plastic-based modeling compounds. While the artistic effects of these contemporary materials can be seductive, many are expensive and leave behind significant amounts of casing, packaging and waste that end up in landfill.

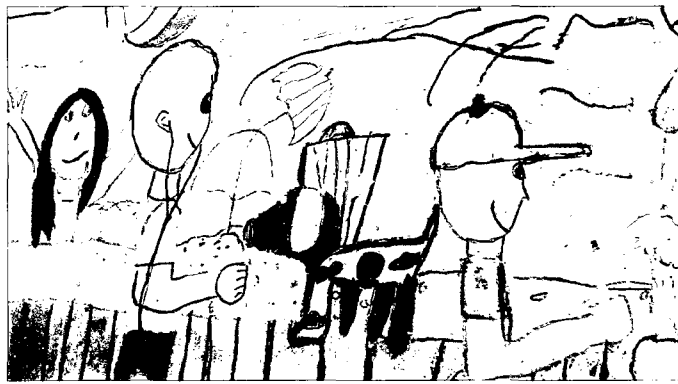
Students' Artworks, Kew Beach Jr. Public School



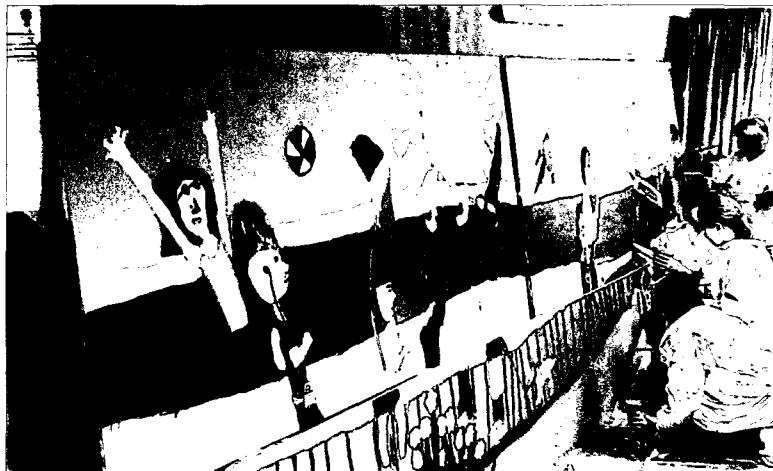
III. 11 – Seed drawing



III. 12 – Preparatory sketch for the mural project (line drawing)



III. 13 – Preparatory sketch for the mural project (pastel on paper)



III. 14 – Mural in progress

Table 2: Chart of Astrid's Eco-Art Curricula

<i>Activity</i>	<i>Month</i>	<i>Timing</i>	<i>Natural Materials</i>	<i>Traditional Materials</i>	<i>Environmental Ed Links</i>	<i>Site</i>	<i>Curriculum Connections</i>
Seed Drawings	Nov	30 min	seeds	Paper, glue	Natural materials; natural imagery	Class-room	Art
Sand Drawings	Dec	30 min	sand	Paper, glue	Natural materials; natural imagery	Class-room	Art
Community Mural	Feb	10 days	-	Plywood, acrylic paints	Sense of place; natural imagery	Class-room	Art
Andy Goldsworthy Study	April	30 min	N/A	DVD	Sense of place	Class-room	Art

Sadly this sense of time compression also characterized her major eco-art project of the year, which took place in February. In one of our first meetings she expressed a desire to involve the whole school in an eco-art installation for the school garden.

Although much of the schoolyard is asphalted, it has a few small green spaces, two of which are on the west side of the school; one is a treed area bounded by the school and two concrete retaining walls, while the other is a sunny garden close to the main doors of the school. She and I discussed the possibility of bringing in a professional artist to work with students to create a mural to brighten up the concrete retaining walls. We arranged with a Toronto artist, Dara Aram, to come to the school under the sponsorship of the Ontario Arts Council's Artists-in-Education program to work on the installation. Astrid had high hopes for the links the project might bring to environmental learning and other school events:

Dara will speak with the students re the environment and water in particular (our school is situated right near Lake Ontario). As well, our librarian is organizing a major project with Free the Children to support a village re a school and a well. This should all tie in very well.

But from the start she ran into challenges with the program, from the funding to getting the supplies to its timing. She wrote:

There is support from the staff but the office staff is worried about money allocation for the supplies, especially the outside board that we need to paint on. If I had to do it again, I would fundraise before we began the project. It will take a week. It should have been in early January but Dara had to cancel. We are now looking at report card reporting time and the staff is feeling overwhelmed re getting assessments done—not a good time for students to be painting a mural!

The time crunch for Astrid only intensified as the project got underway:

Dara talks (briefly) about the environment—there really should be more prep work but I have been too busy and the teachers are too busy with report cards. Students begin sketches. We run about gathering supplies and finding a room for the project to take place in. He is with us [from February 21st] until March 5th. In the meantime we have a Science Fair going on and reports cards!!!

Despite Astrid's feelings of pressure, this was not the mood on site; as part of my field observations I watched the mural project unfold for a day, and the ambience was relaxed and positive. Prior to my visit, Dara had asked students in the school to fill out a work sheet to brainstorm ideas for the mural as part of a school assembly.²² The children responded with descriptive sketches of their local community, rather than the solutions to environmental issues that Dara had requested. But it was evident that these drawings had formed the basis for the mural, as they hung above the mural-in-progress, demonstrating the images' origins (see illustrations 12 and 13 on page 129). Students from different classes rotated through painting duties over the course of the day; all of the children in the school spent time painting the mural, with preference given to students in grades four,

²² The instructions on the work sheets read: "Draw an idea for a mural that demonstrates your feelings about the importance of respecting and protecting our environment (specifically our beaches and water) so that future generations will continue to have a clean, safe, and beautiful world in which live in and enjoy. In your drawing, try to include ways in which we can help protect and preserve our beach environments. Also, try to include an idea for an installation that will be part of the mural".

five and six. The students I observed in action loved working on this project; there was lots of ‘art talk’ focused on the mural, and many enthusiastic comments about their involvement. There was little off-task behaviour, many students didn’t want to leave at the end of their shift, and some re-appeared voluntarily offering to help on their recess breaks (see illustration 14 on page 129 for a photo of the mural in process). The adults in the school also seemed supportive; one parent dropped in to offer an extra set of hands, and a few teachers popped in to see how the mural was progressing. According to Astrid only one teacher (out of a staff of about twenty) insisted that her students finish their ‘regular schoolwork’ before being allowed to paint.

There did seem to be a disconnect with the theme of the work (environmental protection) and the studio methods, which didn’t appear to incorporate any environmentally-friendly practices; used newspapers were being disposed of in the garbage rather than the recycling bin, and waste water from acrylic paints was going down the drain without the sludge being settled and disposed of first. Astrid had similar concerns about the project in terms of its content; while still in progress, she noted this in her journal:

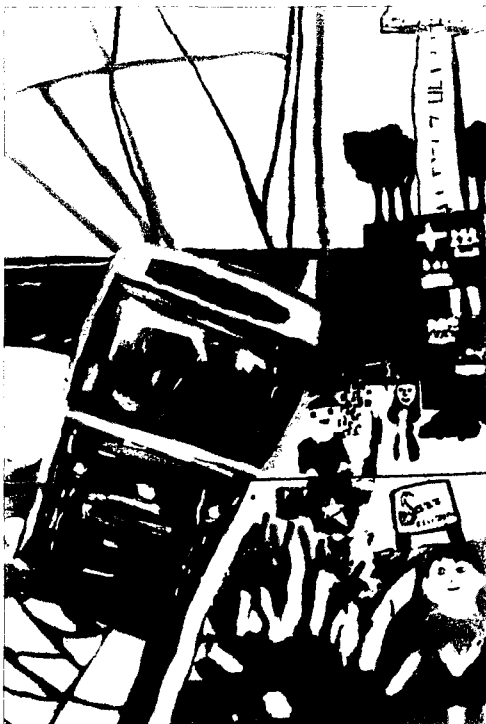
Is this really an eco-art project? It is too rushed - the concept behind the ‘water’ connection has been lost. Although it has been fun for most, it has been stressful for others. It may in the end reflect ‘eco-art’ as it will be mounted outside and the topic (our community—water, beach, streetcars etc.) is related to our community environment. Yet, did the students have opportunities to reflect on the implications of water to the environment? No.

My field observation left me with questions about the strength of the sense of place connection in the mural project as well, which I recorded in my field notes:

Students' Artworks, Kew Beach Jr. Public School



Ill,15 – Completed mural, Kew Beach PS



(detail)



Ill. 16 – Completed mural, Kew Beach PS
(detail)

Ill. 17.– Completed mural, Kew Beach PS

What are students really getting from this experience? What are they learning about the environment? Is working on a sense of place artwork sufficient for developing ecological literacy? How can themes of protection and preservation be encouraged or developed through sense of place imagery/themes? How explicit does this need to be?

Perhaps the environmental connection wasn't made deeply enough to be remembered by the students; it didn't appear to make an impact from the adults' perspectives. But my observations left me thinking that it did make a strong impression on them in terms of their involvement in the visual arts and its power to share their ideas about their community with others.²³ And its permanent installation in the schoolyard may serve to remind these students' of their sense of place at the school and in the neighbourhood, an important step towards environmental literacy.

By the spring, Astrid was feeling frustrated that she hadn't done another eco-art project with the club. She wrote, "We have been very busy with recycling, lights out, curtains closed, and weeding etc. etc. I haven't had time to think about eco-art". A few weeks later she continued, "No art activities have taken place. We have been practicing our song for the Spring Concert. I did show the students a few clips from Andy Goldsworthy's film. They really enjoyed it". Interestingly she had done eco-art at this point, by sharing Goldsworthy's work (and by her previous thoughts, having them learn eco-songs) but she didn't conceive of these as such at that time; her definition of eco-art education still seemed to centre on art-making at its core. Later in her journal she reflected on this:

²³ Astrid's sense of frustration was only compounded as she ran into more challenges with the mural project during the spring. While she and her principal had carefully followed the TDSB's policy for murals by painting it on large sheets of exterior grade, waterproofed plywood, the board's carpenters refused to install the mural on the exterior wall for which it had been painted. It would take a full year before they were able to get it installed; it is unclear why the carpenters refused to hang it in the first place, and what changed their minds a year later. See illustrations 15 to 17 on page 133 for photos of the completed and installed mural.

the EcoClub participation in this project was really only successful through the music component—the songs they learned will resonate with them for years to come. The art projects were fun for them but the implications re stewardship for the environment were not there. We could have/should have incorporated more 'environmental awareness' but 'time' never seemed to be on our side.

Although Astrid may have felt that she had not accomplished what she had set out to, she nonetheless accomplished her initial goals, to create an artwork for the school garden and to integrate eco-art into the EcoClub. Along the way she facilitated an eco-art education experience that involved her entire school community, and resulted in a wonderful legacy for the school garden. Imagine what she could have accomplished if she had had more time!

Sculptural Book: Portrait of Astrid Tobin



Ill. 18 – Side one of open book



Ill. 19 – Side two of open book

Karen Goodfellow

As a teacher with experience in outdoor education, Karen was confident at the outset of this study that she had a firm grasp of nature-based learning and environmental issues to share with her students. But as a teacher of a grade 2/3 class that included many students with behavioural issues and learning differences, she wasn't sure what she could successfully lead them through over the course of the year. She spoke of these challenges in one of the first team meetings:

...their behaviour generally is so disruptive, it's really making it difficult to get these concepts done as quickly as I would like. And I also find, having taught Junior and Intermediate school mostly, and now it's my third year in Primary, you'd think by now I would have figured it out, but Primary kids are so slow to complete anything, it's painful. So then you throw in these behaviour issues and special needs, and that would be the hardest thing, because the kids themselves are quite excited. I would love to have already taken them to High Park, but with their behavioural needs, I can't get there yet. And that frustrates me because, as you can see, I see all these connections and extensions and I want to just be there.

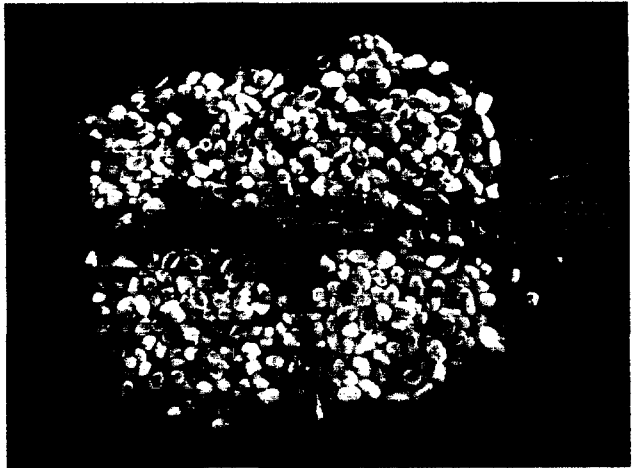
Therefore her development of an eco-art curriculum of great breadth and depth was no small feat; that she accomplished what she did with primary students was all the more impressive.

Karen found the impetus for one of her first lessons quite literally lying in the street. Walking along the shopping street in her neighbourhood, she found five large cardboard drums by the curbside, ready for the garbage truck. Never one to shy away from a challenge, Karen rolled them home and then to school; she wasn't certain what their use would be, but she did know they were in too good a shape to be sent to landfill. Three of them became the focus of one of her first eco-art lessons of the year; her class turned them into a set of cylindrical collages covered in pictures and words (see ill. 20 on page 138) that demonstrated their study of urban and rural environments (a grade three

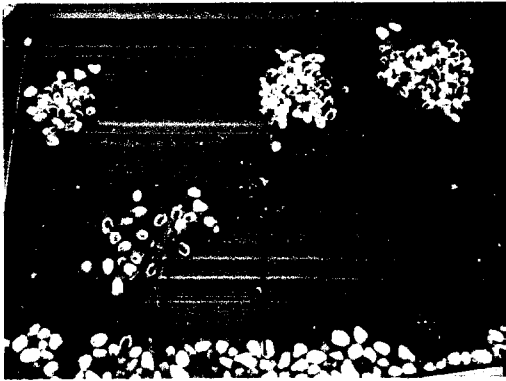
Grade 2/3 Students' Artworks, Annette Jr. & Sr. Public School



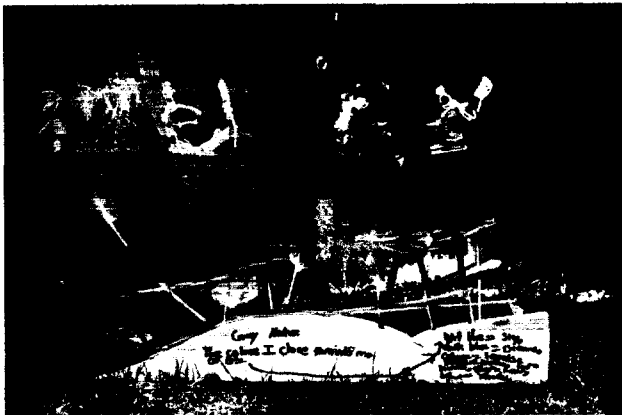
Ill. 20 - Urban/Rural Drum Collages



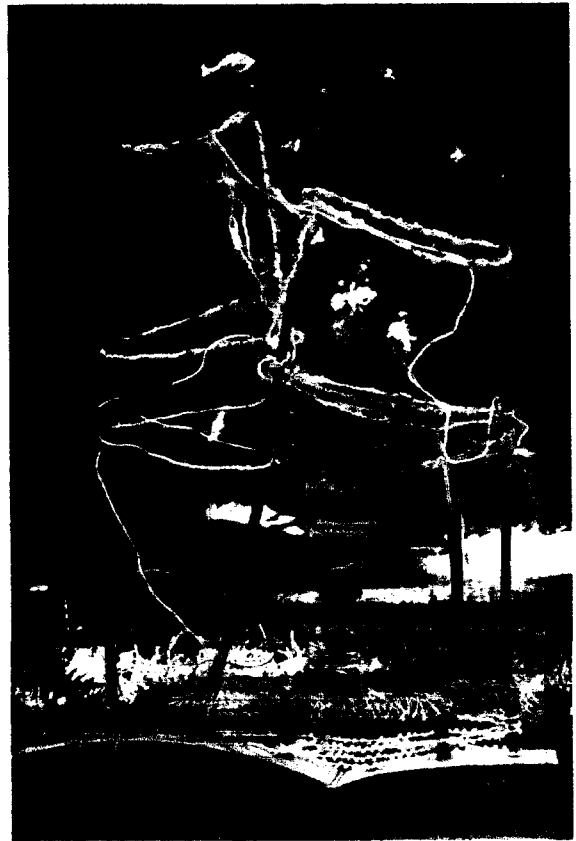
Ill. 21 - Natural Relief Sculpture



Ill. 22 - Natural Relief Sculpture



Ill. 23 - Woven Wood Sculpture



Ill. 24 - Woven Wood Sculpture

social studies theme). Karen noted in the second team meeting that these three-dimensional collages had an auditory function as well:

...if you put it the other way up, then it makes more of a drum surface, so then the kids are actually interacting with it, so they're making it, they're reading it, it's got the message, but then they come up and they actually drum it...So again, it's building their own drum but tying in urban, rural, earth, soil naturalizing...

This lesson exemplified the qualities Karen brought to eco-art lessons over the year: resourcefulness, creativity, and a strong commitment to cross-curricular learning. These influenced the development of many of the seventeen lessons she created, all to the benefit of her students and her program (refer to table 3 on page 140-141 for a chart of Karen's eco-art lessons).

Some of her lessons were simpler in construction than the drum collages, though they were just as important in developing her students' sense of place in other ways. Two lessons in the fall had the class making nature drawings and bark rubbings in the schoolyard and in High Park (which was only a fifteen minute walk from her school). Both of these demonstrated Karen's desire to get her urban students outside as often as possible in hopes of deepening their connection to the natural world. She reinforced this later in the year by taking the class to the local outdoor education centre for a full day program. The class explored the 'natural art studio' of the Humber River valley as a part of the program, were introduced to the work of Andy Goldsworthy, and created their own nature-based, site-specific installations.²⁴ Karen was pleased with the results: "the stuff the kids produced was phenomenal, Grade 2, 3's, using all the natural objects. And they

²⁴ Ironically, I developed this program with site manager Pamela Miller for the Warren Park Outdoor Education Centre in 2001. Called *Unearthing Art*, it integrates art and outdoor education as a means of exploring the Humber River valley. It has proven to be the centre's most popular program, and has since been adopted by other TDSB outdoor education centres.

Table 3: Chart of Karen's Eco-Art Curricula

<i>Activity</i>	<i>Month</i>	<i>Timing</i>	<i>Natural Materials</i>	<i>Traditional Materials</i>	<i>Environmental Ed Links</i>	<i>Site</i>	<i>Curriculum Connections</i>
Urban/rural Drum Collages	Oct.	three weeks *	-	Re-claimed materials (cardboard drums; magazines)	Re-using of materials; sense of place; natural imagery	Class-room	Art, Social Studies, Music
'With Thanks' Paper Wall Hangings	Oct	45 min	Branches	Paper, crayons, paper ribbon	Nature appreciation	Class-room	Art, Language arts
Andy Goldsworthy Study	Nov	60 min	-	DVD, books, slides	Sense of place	Class-room	Art
Nature and Eco-art Sketches	Nov	60 min	-	Goldsworthy DVD, pencils, paper	Sense of place; observation of nature	Class-room & School-yard	Art
Nature-based sculptures	Nov	1 day	Branches, stones, leaves, etc.	Camera	Sense of place; natural materials; observation of nature	Warren Park Outdoor Ed Centre	Art, Science
Nature sketches	Nov.	45 min	-	Paper, pencils	Sense of place; observation of nature; natural imagery	School-yard	Art
Bark Rubbings	April	30 min	Bark	Paper, crayons	Observation of nature; natural materials; natural imagery	High Park	Art, Outdoor Education
Natural Dyes	April	30 min	Food, water, raffia	-	Natural materials	Class-room	Art, Language Arts
Brian Jungen Study	March	30 min	-	Photographs	Reusing	Class-room	Art
Junk Art Masks	March	60 min	-	Re-claimed Blue box items	Re-using of materials	Class-room	Art, Language Arts
Papermaking	March/ April	3 x 45 min	Water	Re-claimed paper	Recycling of materials; natural materials	Class-room	Art, Language Arts
God's Eyes	March	1 week *	Branches, wool, raffia	-	Re-using of materials; natural materials; empathy for animals	Class-room	Art
Natural Relief Sculptures	March	2 x 60 min	Branches, pussy willows, stones	Camera	Natural materials; natural imagery	Class-room	Art, Language Arts

Solution to Pollution video	March/ April	Weeks *	-	Video camera and multiple materials	Sense of place; recycling, reducing, reusing	Class-room	Art, Language Arts, Social Studies, Science
Rainforest Batik	March/ April	1 day	-	Fabric, dyes wax	Natural imagery; nature appreciation	Class-room	Art, Language Arts
Earth Week Poster making	April	60 min	-	Reclaimed banner, paper, magic markers, pencils, crayons	Earth week messages; recycling, reducing, reusing; Boomerang lunch	Class-room	Art, Language Arts
Wish Scrolls	April	2 x 40 min	-	Handmade paper, film canisters	Re-using and recycling; gratitude for the earth	Class-room	Art, Language Arts
Earth Wanderings Quilt	May	4 hours	-	Re-claimed materials (fabric scraps, banner)	Re-using of materials	Class-room	Art, Language Arts, Social Studies
Butterfly Relief Sculptures	May	2 x half days	Clay, under-glazes and glazes	-	Nature observation	Class-room & School yard	Art, Science, Language Arts
Woven Wood Sculptures	May - June	1 week *	Branches, feathers, wool	Found materials (cut wood, fabric, etc.)	Re-using, recycling, sense of place	Class-room	Art, Language Arts

** Timing marked with an asterisk denotes that the lesson was spread intermittently over this time period, making it difficult to determine how much time was spent on the lesson.*

were so excited about leaving it there and walking away”. She appreciated that her class was being encouraged to value artistic process over product in this program, and that they were learning experientially in the great outdoors.

On days that she couldn’t take her students outside, she made sure that nature wasn’t far from mind by keeping lots of natural materials in her classroom to inspire their learning. This surfaced in three of her lessons over the course of the year: the lesson on ‘Natural Dyes’, the ‘Natural Relief Sculptures’, and the ‘Woven Wood Sculptures’. In the first, Karen taught the class how to tint rafia using natural dyes from plants and

vegetables, which was then incorporated into the 'God's Eye' lesson a few months later.²⁵ In the second, she left a variety of natural materials (pussy willows, branches and stones) in an activity centre and invited the class to make relief sculptures, which she photographed and then dismantled, reinforcing the importance of process over product (see illustrations 21 and 22 on page 138). And in the third, Karen supplied a combination of wood scraps and natural materials (twigs, feathers, wool, and grapevine) for students to make into standing 'Woven Wood Sculptures' (see illustrations 23 and 24 on page 138). She noted in one of the team meetings that she had a reputation at her school for bringing natural materials inside:

...at school they're always teasing me for bringing in more earth stuff, tying it somehow into the assembly that will affect the whole school, the messages. And last year they were starting to call me the Earth Mother and all these other things. But they're starting to say "What's Karen bringing in now?" Because every month I'd be bringing in another bunch of twigs or something for art. And they actually started to say, you know, "We're now waiting for Karen to bring in the whole tree and have us all circle it and hug it in the hallway". And I just looked at the principal and I said "Truly they don't know me, do they? Because I'd be taking them outside to hug the tree".

Although she felt her colleagues were ridiculing her at times about her involvement in outdoor and environmental education, she also felt strongly that it was important to model her passion for these. She saw her eco-art curriculum as

...something that we [the class] can use to interact with but we can then put it outside the classroom to engage other people and give a very strong political environmental message...this way, it's engaging other people which art does, but it's got more of a kick to it, and more of a - I would hope, and maybe I'm off, but my interpretation - more of a message.

²⁵ The God's Eyes were inspired by Anne's project at Runnymede, but with an added twist. Karen had her class use the raffia as a loosely-tied fringe at the bottom of each piece so that birds could pull them out for building their nests in the spring.

Her desire to have students make connections with environmental concepts and attach this meaning to their artworks was evident in a number of the lessons that she did with them. One was the ‘Earth Wandering Quilt’, which was created as a collaborative project from re-claimed fabric swatches and an advertising banner. Its inspiration came from the class’s study of quilts in the Underground Railway, the illustrations of Jacqueline Woodson in the book *Show Way*, and the art of Faith Ringgold. Karen described the intention of the project in her journal:

Both artists use quilts and textile art to deliver a message about the treatment of their people, their history and their life stories. The children felt that we could take inspiration from this to create a quilt to deliver a message about the environment. One of the students created a poem that was finished with the help of the others during our Author’s Chair session. It will be written along the sides of the quilt using a black Sharpie marker, just like Faith Ringgold often uses.

Similar types of messages for the earth were incorporated into the ‘Wish Scrolls’ project (containing wishes for themselves and their world on handmade paper), and the ‘With Thanks Paper Wall Hangings’. Of the latter Karen noted that the materials used in these Thanksgiving-inspired hangings reinforced the meaning of the children’s words:

These were shared with their families in the fall and students understood that they would be entirely recyclable after they shared them, as no tape was used or staples or yarn; this was done as a token or gesture of being grateful for the Earth.

The culminating project of the year proved to be the most eloquent in demonstrating the class’s engagement with environmental activism. A series of cross-curricular lessons and activities resulted in a thirty minute documentary that Karen described in her journal:

...students were engaged in the preplanning, writing and dramatization of an integrated news type show about the environment, entitled ‘The Solution to Pollution: A Child’s Perspective’. It included sections on littering, vermicomposting, the Boomerang Lunch, books with

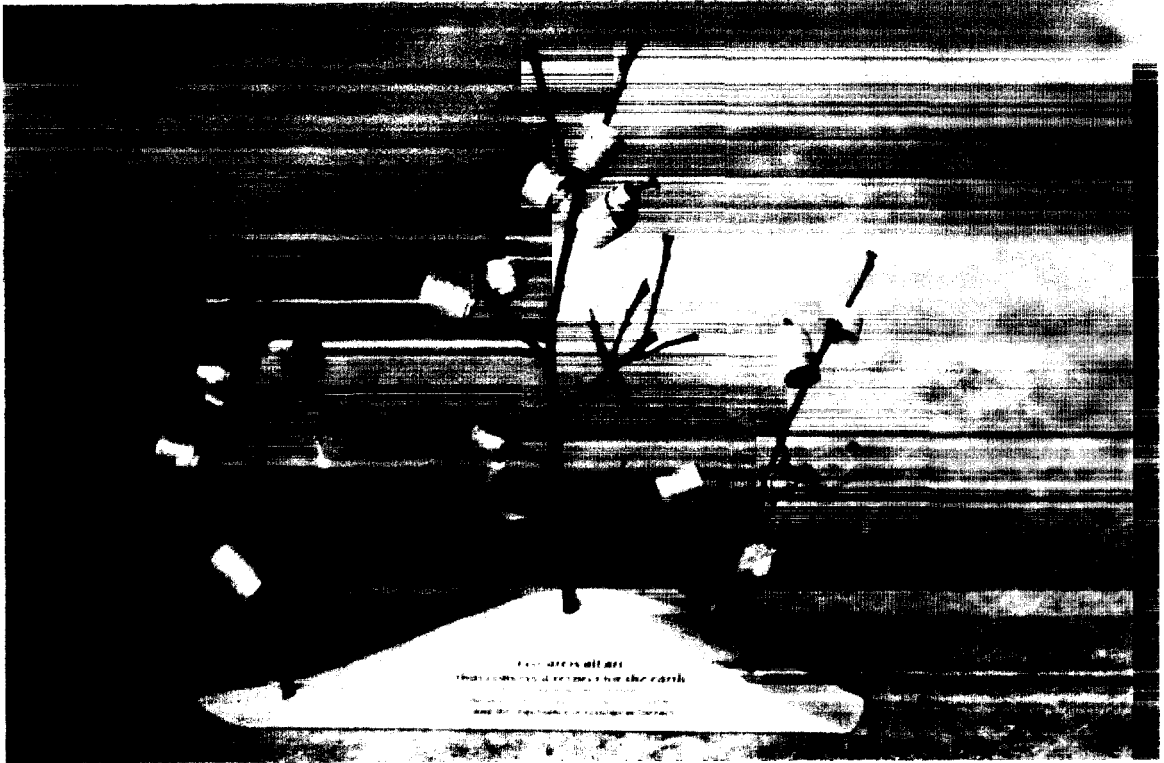
environmental messages, an interview with a child who had just returned from Costa Rica about the rainforest, an eco art show, an interview with a senior citizen about how life was different as an 8 year old, eighty years ago (imagine no plastic and no jeans!), poetry reading and lip-synching a song with a strong environmental message.

Its production integrated all aspects of the curriculum, and became the focus of learning in the classroom over a number of weeks. It was played for the school community at an Arts Open House, alongside eco-arts activity centres (including weaving, sculpting, drumming, reading and paper-making) run by the students. Karen was rightfully proud of the class's accomplishment, and especially pleased of the way it engaged all of the students in the class:

...it was fabulous. This project was so good for the kids with special needs - that little guy with Asperger's, another little girl has an anxiety disorder. So it was really neat with all the kids and they were so excited to be on the show and teach other people, to teach teachers and parents and kids and share their message around.

So Karen's concerns at the outset, of not being able to accomplish much with her primary class, proved unfounded. Her program was impressive in quantity and in quality, providing a range of two- and three-dimensional studio activities in a variety of media. Her approach to eco-art curriculum was age-appropriate and cross-curricular, and fully embodied her desire to expand her students' knowledge of and experience with their local and global environments, thereby improving their environmental literacy.

Sculptural Book: Portrait of Karen Goodfellow



III. 25 – Front side of book



III. 26 –
Detail of book

Dorie Preston

Dorie had a strong commitment to art-based learning before the project began; in the first meeting she described to the team how every Thursday morning is allocated as art-making time in her classroom. Her program recognized the importance of learning about art as an end in its own right, but also placed art in the context of learning about other subjects; in this integrating art with environmental learning was another manifestation of the pedagogical approach she had used in the past. This balance was reflected in her eco-art curriculum; of the nineteen lessons she developed in eco-art education over the course of the year, about half (nine) were integrated with other subjects such as language arts, social studies, and math, while ten lessons focused solely on the visual arts (refer to table 4 on page 154-155 for a listing of all of these lessons).

Her first lessons in eco-art education drew inspiration from ones she had learned at the Sightseeing Summer Institute two years earlier. She had the class make three-dimensional landscape collages from cardboard and paper scraps in the first lesson, and paintings of the ground on overhead transparencies in the second. From there she began developing her own lesson ideas. Her first, called 'Take 30', was also Dorie's first attempt at using natural materials. She described her inspiration in her journal: "I've got 30 kids in my class, so 30 students, 30 minutes, 30 natural items, 30 words". Goldsworthy's work provided an entrée to working with natural materials as she described his work to the class prior to beginning. She gave the class a limited time-frame to arrange and place their natural materials in the schoolyard, and then photographed each composition (refer to illustration 27 and 28 on page 148). Over the next few days, the class created potato print frames for the photos, and wrote descriptions

of their working process (in thirty words or less). These ended up as poems of sorts, eloquently describing the images they had created. One sample read: “Thirty little crabapples float along the bright blue puddle’s surface. They float in little groups of four in the long still day. They float in the autumn stillness”. Dorie noted that “making sure all four processes (statement, print border, artwork and student photo) are done is very time consuming”. But overall she thought it was worth the time, as she noted in her journal that her

students appeared to enjoy the freedom of working without strict parameters, glue, scissors, extra paper etc. They thought it was a ‘fun’ activity. The Spotlight bulletin board in the school foyer looks fantastic [exhibiting these works] and the feedback from the teachers and students has been very positive.

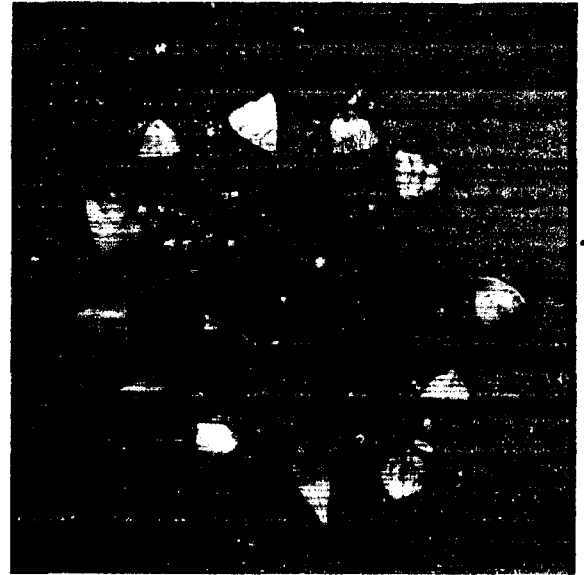
Although Goldsworthy’s work had been described verbally to the class prior to this lesson, Dorie chose to show the class the documentary of his working process in *Rivers and Tides* (Riedelsheimer, 2004) the following month. She was inspired to try a second project with natural materials after the holiday break, using an idea found in the Toronto Star newspaper as her guide. Waiting for winter temperatures, she had the class scour the schoolyard for natural items such as leaves, branches, berries and stones. They arranged these in the bottom of tin pie plates, filled them with water, and left them to freeze overnight. Dorie’s journal noted the results:

Today we created ‘EcoArtistree’ by making the ‘Suncatchers’ using found materials. We hung them from trees in the schoolyard and put an announcement on the PA system asking the kids to enjoy and admire the artwork and leave it so that nature could take its course (melt, sway, twirl). It was really successful – fun and effective. I got photos of the students in front of the tree with their transparent disks. Lots of favourable comments were made to the kids about their art installation (refer to illustration 29 on page 148).

Grade 5 Students' Artworks, West Rouge Jr. Public School



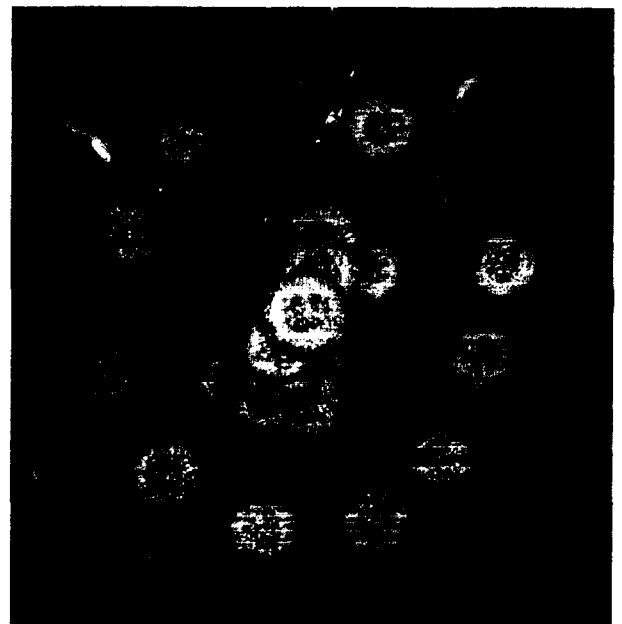
III. 27 - Take 30 Installation #1



III. 28 - Take 30 Installation #2



III. 29 - Suncatcher ice sculptures



III. 30 - Edible Art

Dorie's reporting of this activity to the team the following week encouraged Anne to proceed with the ice sculpture lesson she had been considering for her class for February. It also demonstrated the pervasive influence of Goldsworthy's work throughout much of the curriculum development process, as well as the process of sharing and encouragement that occurred via the team meetings. Perhaps inspired by the team's positive reaction, Dorie planned another winter art activity involving snow and food dyes. The principal decided that this one shouldn't be done, however, due to the risk of staining the children's snowsuits with the dyes.

Dorie demonstrated her ongoing interest in working with biodegradable materials by creating another lesson that was integrated with a unit on health. As part of a lesson on good nutrition, she asked students to create relief sculptures using only fruits and vegetables. The students worked in groups to create edible artworks based on a designated element of design and specific type of food; their artworks ended up as brightly-coloured geometric shapes and patterns (see illustration 30 on page 148). Dorie found the students eager to work on this project collaboratively, and even more enthusiastic to eat their creations. (In this she successfully proved that eco-art can be educational, biodegradable and also nutritious!)

These lessons demonstrate the creativity and experimentation in Dorie's lesson design which surfaced throughout the year. An excellent example of the latter came in a lesson on paper-making. Invited to lead this lesson with the class, my field notes captured my feelings on the experience:

Had a wonderful afternoon with Dorie's class today – she asked me to help her students with papermaking for a 'Valentine's for Veterans' project. The papermaking went smoothly – she helped students pull pieces of paper after pulling a few herself – my experience is that both teachers

and students get the hang of it very quickly. I was impressed with the level of discussion we had at the outset – I wanted to make the point of the environmentally friendly nature of hand-made papermaking, which the class got immediately and in fact were able to extend into an amazingly astute conversation about the toxic processes of commercial papermaking.

Dorie had purchased seeds to add to the paper pulp so that the paper could be planted in future to grow into flowers. As the paper was destined for cards for the school's 'Valentine's for Veterans' project, the addition of Forget-Me-Not seeds seemed not only apropos but also quite inspired! (See illustration 31 on page 151 for a photo of the work that resulted). Her class picked up on the notion of experimentation by continuing with paper-making on their own over the next few days, adding other natural substances to the pulp like banana skins and pet fur. While the latter was not a huge success, students were enthusiastic about the process and eager to try more.

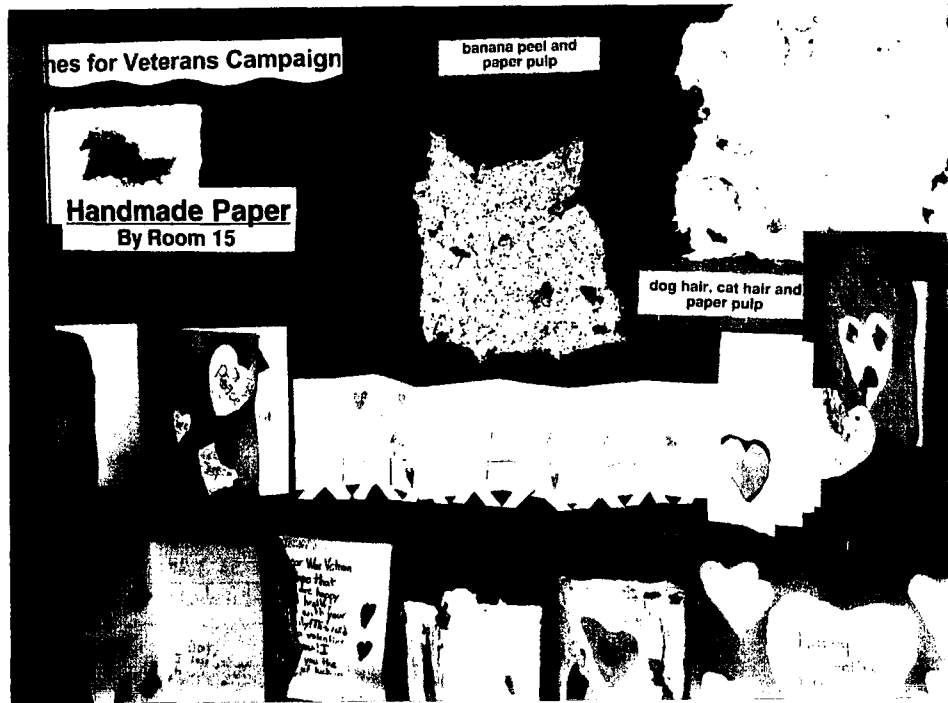
Throughout the design of these lessons, Dorie seemed intent to increase her own understanding of environmental concepts and issues and share this with the class. She watched Al Gore's documentary *An Inconvenient Truth* (2006) and noted how this translated into her classroom:

I'm much more aware of the environment myself. I watched 'An Inconvenient Truth' this week, and related the story to my students, drew an exponential graph on the board, and discussed climate change. They seemed interested, although I don't want to alarm them such that they're really scared. I focused on the positive aspect of being empowered now to do something. We discussed ways of trying to make a difference.

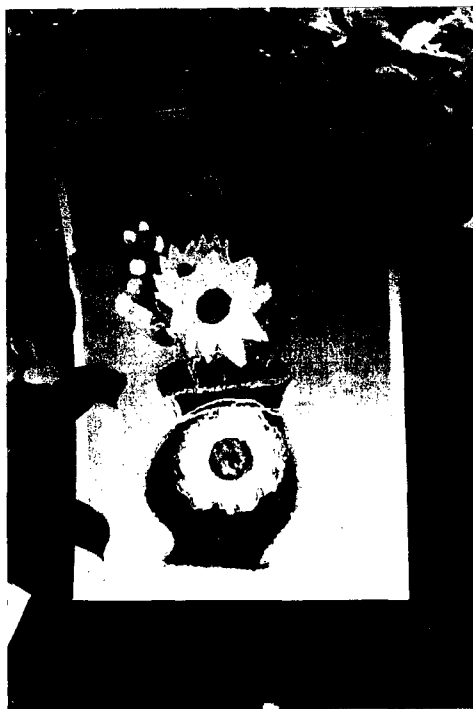
In January she decided to show Gore's documentary to her students, and reported on the outcome in her research journal:

We watched Al Gore's 'An Inconvenient Truth' in 3 parts yesterday and today. The students were very attentive and after a discussion I asked how many felt that it was at a level Grade 5 students could understand. About half felt it was. My comment was that everyone would take something from the film... We had a discussion about the positive elements at the end of

Grade 5 Students' Artworks, West Rouge Jr. Public School



Ill. 31 - Handmade paper display



Ill. 32 - O'Keefe-inspired flower painting



Ill. 33 - Flower still life paintings

the film and talked about the proactive things that we can all do to help our environment. I explained that Al Gore was a very good speaker who had techniques to support his opinion – this led nicely into a discussion about Media Literacy and bias.

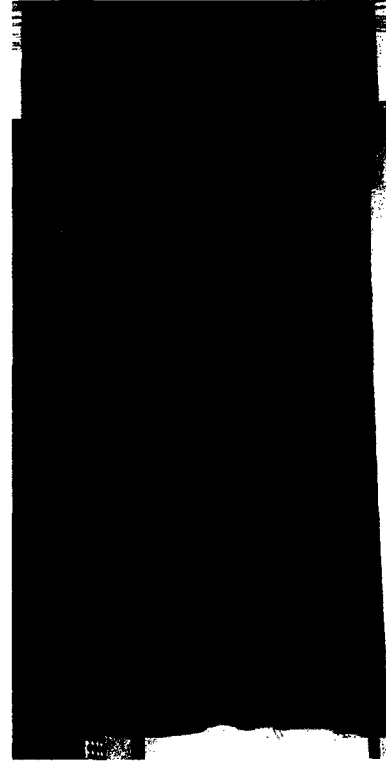
This was an important session for both her and her students; she introduced a complex set of concepts and engaged them in helping her to learn about the challenges of tackling environmental learning in junior-level classrooms. This raised important questions: how much do we share with children about the environmental crisis? Are there other ways of developing notions of caring for the environment and sustainability without giving all the facts? Do children need to be convinced of the depth and breadth of the environmental crisis before being taught environmentally-friendly modes of living? Although educators such as Sobel (2005) are attempting to provide some direction in this area, I think Dorie's journal entry demonstrates that teachers are still working through the answers to these complex questions on a daily basis in their classrooms.

Dorie interspersed innovative lessons with ones that were more traditional in approach. Linked to the environment mainly through the depiction of natural imagery, these lessons consisted of paintings, drawings and sculptures. The materials, including crayons, charcoal, watercolours, tempera paints, and food dyes, are commonly found in elementary classrooms, are non-toxic, and most are environmentally-friendly. She used a range of starting points for these lessons; in one, 'O'Keefe-inspired Flower Paintings', it was the American artist Georgia O'Keefe, whose art focused heavily on nature, while in another, 'Flower Still Life Paintings' the students drew from actual flowers (see illustrations 32 and 33 respectively on page 151). A third flower lesson, 'Flower Banners', had students working from memory (see illustrations 34 and 35 on page 153) to

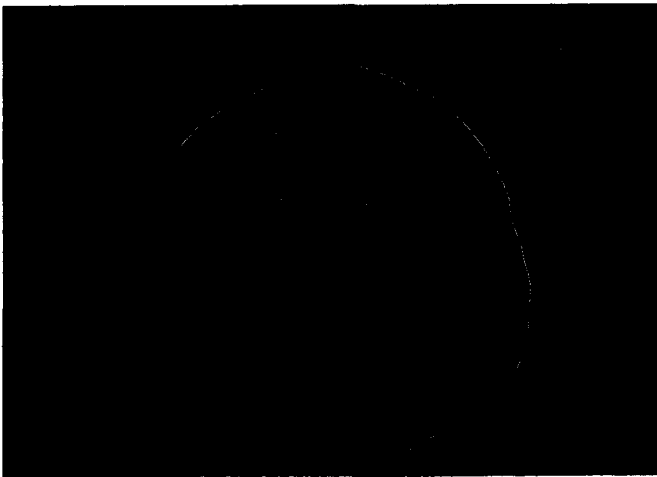
Grade 5 Students' Artworks, West Rouge Jr. Public School



Ill. 34 - Flower banner #1



Ill. 35 - Flower banner #2



Ill. 36 - Ancient civilization garden stake #1



Ill. 37 - Ancient civilization garden stake #2

create abstracted images of flowers and plants. To balance these two-dimensional techniques, Dorie also did two clay lessons with the class, choosing clay as an environmentally-friendly material.²⁶ The first was a project of teacups and saucers, and the second was a symbolic depiction of nature through the lens of the ancient civilizations her class was studying. Mounted on bamboo stakes, this latter project resulted in clay tiles and sculptures representing deities and spirits of nature (see illustration 36 and 37 on page 153). Like Anne and Astrid before her, Dorie’s use of clay raised an intriguing question: was it sufficient for an eco-artwork to use eco-friendly materials, or did it have to address questions of environmentalism in a more concrete way?

Table 4: Chart of Dorie’s Eco-Art Curricula

<i>Activity</i>	<i>Month</i>	<i>Timing</i>	<i>Natural Materials</i>	<i>Traditional Materials</i>	<i>Environmental Ed Links</i>	<i>Site</i>	<i>Curriculum Connections</i>
3D Landscape Collages	Sept	3x 40 min	-	Recycled cardboard, paper scraps, glue	Natural imagery; re-using materials	Class-room	Art
Transparent Ground Paintings	Oct	2 x 40 min	Found natural objects on ground	Overhead transparencies, acrylic paints	Observation of nature, sense of place	Class-room & School Yard	Art, language arts, social studies
Take 30	Oct	2x40 min	Rocks, leaves, twigs, wood chips, grass, etc.	Digital camera, paper	Natural materials; observation of nature	Class-room & School Yard	Art, language arts
Potato Print Frames	Oct	40 min	potatoes	Paper, tempera paints	Natural materials	Class-room	Art
Andy Goldsworthy Study	Nov	90 min	-	DVD	Sense of place	Class-room	Art

²⁶ As a natural material, clay is a wonderful means for children to explore the process of sculpting. It is environmentally friendly in that it comes from the earth, is non-toxic and is biodegradable. However as it requires a kiln, it is also a technique that demands a high level of energy to get the works to their finished state. Considering all of the phases of a material’s life, from extraction or creation through to its disposal is important in establishing how truly ‘green’ a material or technique is.

Paper-making (Valentines for Vets)	Nov	2 half days	water	paper	Recycling materials	Class-room	Art; social studies
Clay Teacups and Saucers	Dec	2 half days	Clay, under-glazes, glazes	-	Natural materials	Class-room	Art, math
Nature Quilt	Dec	2 x 40 min	-	Paper, ink, crayons, food dyes	Natural imagery	Class-room	Art
Suncatcher Ice Sculptures	Jan	2 x 40 min	Water, leaves, branches, etc.	Tin foil pans	Natural materials; natural processes	Class-room & School Yard	Art, science
Edible art (veggie relief sculptures)	Feb	2 x 40 min	Fruits and vegetables	Plates	Natural materials	Class-room	Art; Health
O'Keefe - inspired Flower Paintings	March	2 x 40 min	Flowers	Tempera paints, paper	Natural imagery	Class-room	Art
Flower Banners	April	2 x 40 min	Food dyes, branches	Fabric paper, glue guns	Natural imagery	Class-room	Art
Ancient Civilization Garden Stakes	April	3 x 40 min	Clay, under-glazes, glazes, bamboo stakes	Glue guns	Natural imagery; spiritual aspects of nature (gods, etc.)	Class-room	Art; social studies
Natural Sculpture Installation	May	40 min	Reeds, hemp, reeds, stones, shells, feathers	Wooden dowelling	Natural materials	Class-room	Art
Eco-Art Banners	May	40 min	Food dyes	Fabric paper	Natural imagery	Class-room	Art, science
Rock Paintings	May	40 min	Rocks	Acrylic paints	Natural imagery	Class-room	Art
Flower Still Life paintings	May	2 x 40 min	flowers	Tempera paints, paper	Observation of nature, natural imagery	Class-room	Art
Eco-Art Exhibition	June	1 day	Trees, bushes, logs, etc.	Many of the artworks in the chart	Natural setting	School Garden	Art, language arts
Drawings of Nature	June	40 min	Nature around the school	Paper, charcoal, drawing boards	Natural imagery	School Yard	Art

Grade 5 Students' Artworks, West Rouge Jr. Public School

West Rouge Garden Tour

	A	B
	10:40 -	11:20 -
	11:20	12:00
<i>Artists</i>	A A.S.C, Brynne	B Alana, Marla
<i>Garden Stakes</i>	A Brianna, Jessie	B Nash, Matt
<i>Hangings</i>	A Alex, Waleed	B Marc, Stefan
<i>Watercolours</i>	A Chloe, Kendra	B Mira, Damon
<i>Clay Ornaments</i>	A Quinn, Candice	B Courtney, Barbara
<i>Oil Pastels</i>	A Sarah	B Doreen
<i>Host/Hostess</i>	A Gabby, Lisa	B Sarah, Dawn
<i>God's Eyes (Mexican)</i>	A Walker, Maddie	B Stephen, Aimee



III. 38 - Eco-art exhibit signage

III. 39 - Eco-art exhibit visitors



III. 40 - Eco-art exhibit general view

In June Dorie came up with an innovative way of addressing this concern by making the environmental connections to these artworks explicit in her last lesson of the year. Conceived of as a grand finale to the class's immersion in eco-art, an eco-art exhibit was planned for the school's butterfly garden. My journal entry summarized what took place:

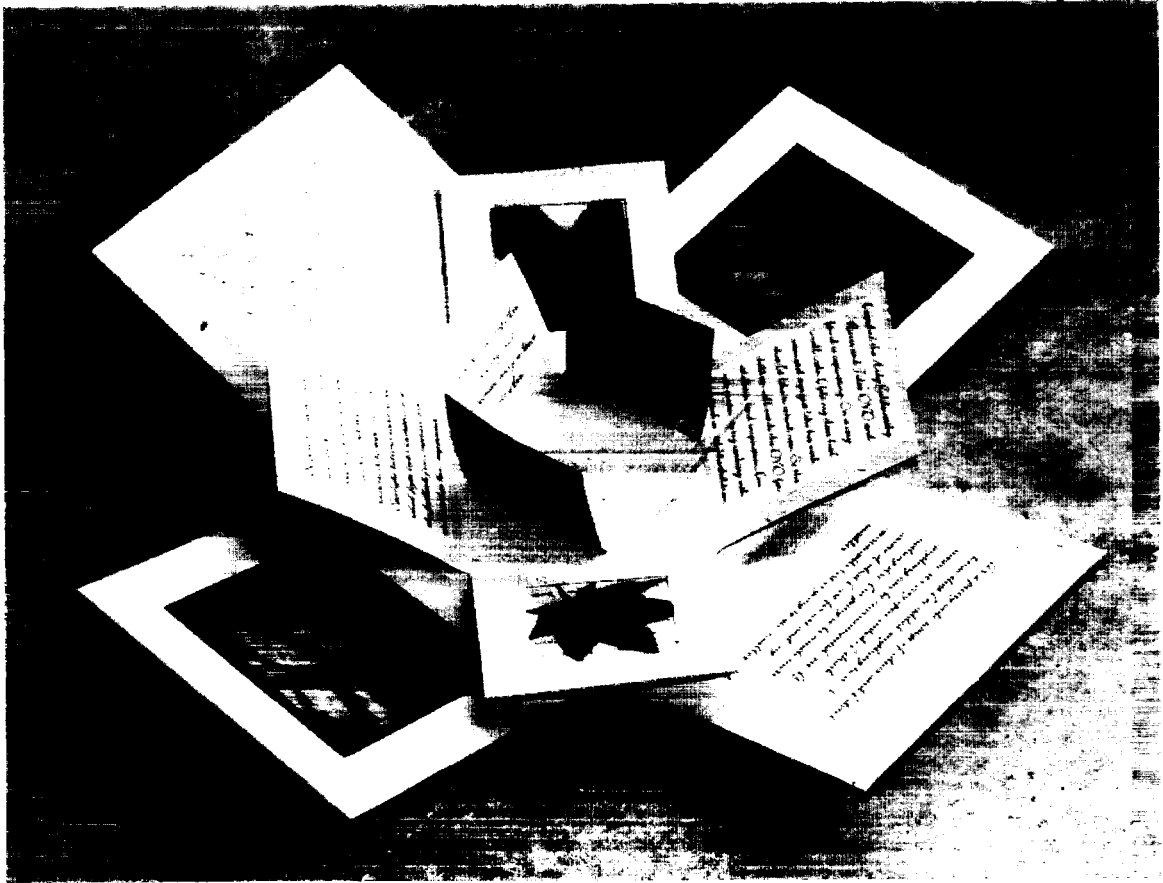
I went to visit Dorie's class today for the grand finale of their eco-art research this year, and what an amazing celebration it was! They had taken many of the artworks they had created this year and installed them in the school's butterfly garden, using it as a nature-based art gallery. It was an impressive series of works, including rock paintings, fabric paper banners, clay garden stakes, pastel flower drawings, watercolours of flowers, and two large banners. They had grouped the works according to media and theme, and installed them on the ground, in bushes and tree stumps, even hanging on a ladder. They had a sign that encouraged viewers to look for the elements of design in each grouping, and the students acted as 'tour guides' to introduce each project to visitors... They even had a group of students doing "performance art", making drawings of the butterfly garden and tapping out rhythms on handmade drums.

I was amazed to see the fruits of their eco-art labours all in one place at one time, and installed in such an innovative way. The display was impressive and exciting, as many of the visitors remarked – teachers and students from other classes in the school came for tours. Many of the visitors expressed how impressed they were and how appreciative they were of the class's efforts. A grade one teacher asked Dorie if her students would consider teaching some of the techniques to her students! This was an exhibit that I had not conceived of before – while Dorie and I had discussed getting her clay works into the garden, she took this kernel of an idea and just ran with it to include everything! The students certainly seemed proud of their work, and were giving wonderful intros in the garden to their work.

The exhibit proved to be a fitting celebratory ending to the diverse eco-art curriculum Dorie had created with her class over the course of the year. By presenting traditional artworks in a natural setting, she and her students focused others in the school to look for beauty in their work and in nature simultaneously, and hopefully heightened

their aesthetic responses to both. They most certainly demonstrated their extended involvement with art-making and their deepened attachment to the school garden and the natural world (see illustrations 38 to 40 on page 156 for photos of the exhibit). And Dorie proved that a generalist teacher with a sense of creativity and experimentation has much to contribute to the development of eco-art education in an elementary setting.

Sculptural Book: Portrait of Dorie Preston



III. 41 – Open book

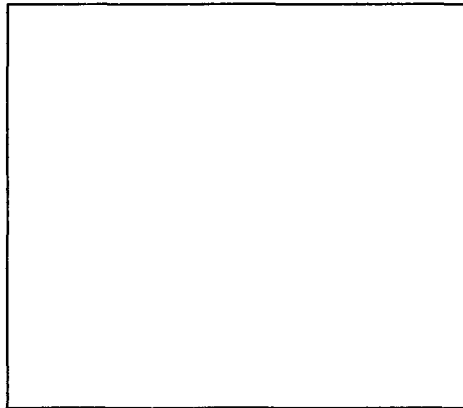


III. 42 – Detail of open book

The Harvest

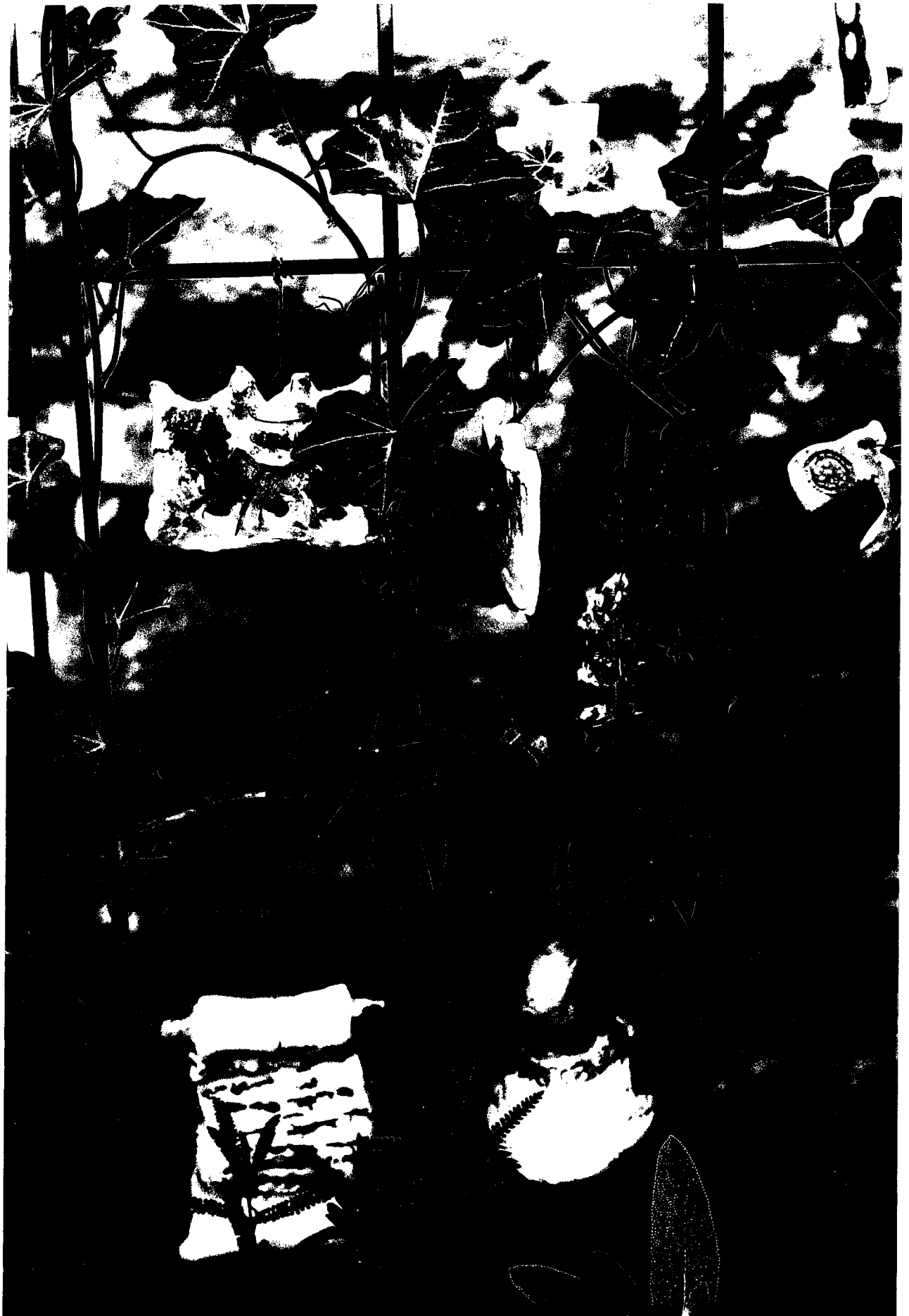
Over the course of the year, the research team grew a bumper crop of over fifty lessons in eco-art education, utilizing a wide range of media and techniques. Their emphasis was grounded strongly in experiential learning, with the overwhelming majority of lessons being studio-based. Although these works were created most often in their classrooms, many of them aimed at deepening a connection to the natural world through the use of natural imagery, materials or processes. A concern for developing environmental literacy was evident in all of the lessons, though in varying degrees. This could be seen in the use of non-toxic and/or biodegradable materials in some cases, in putting the 3Rs (recycling, reducing, reusing) into action in others, and by incorporating environmental messages or themes into the works.

This inquiry proved to be a lush garden with a bountiful harvest, and the team a group of master gardeners. This chapter has aimed at documenting this season of tremendous growth in our collective garden; what is needed next is to discuss the harvest, assess the patterns in our planting and offer an interpretation of the true fruits of our labours.



Guerrilla art gardening with the Artistic Gardens project proved to be a huge success. The grade ones made clay insects and insect houses for their bug garden to support their science unit, while the grade fours made symbols of medieval life as ceramic garden stakes and hanging ornaments to demonstrate their learning in social studies. The grade

three pioneer garden was comprised of three full-size scarecrow sculptures and a mass of vegetable plants. The students grew their own vegetable plants from seed and watched with awe as their seedlings took root and matured into zucchinis, pumpkins and sunflowers. The Wind, Weather and Sky garden was the work of the grade twos as part of their science study; their clay relief sculptures of natural elements in the sky were attached to the timbers of the raised garden bed, while their garden stakes of things that fly in the sky decorated its edges. Once installed, the projects elicited surprise, wonder and appreciation from students, teachers and parents alike. While the students' cheers at the unveiling were not official data for the thesis, it was all that I needed to know that these projects had proved successful at connecting their hearts and their minds to their school yard.



CHAPTER 5: BRINGING IN THE HARVEST

Perhaps the simplest definition is that eco art is all art that conveys a respect for the earth, for our natural environment, the interconnectedness of our eco systems, and the importance of ecological literacy.

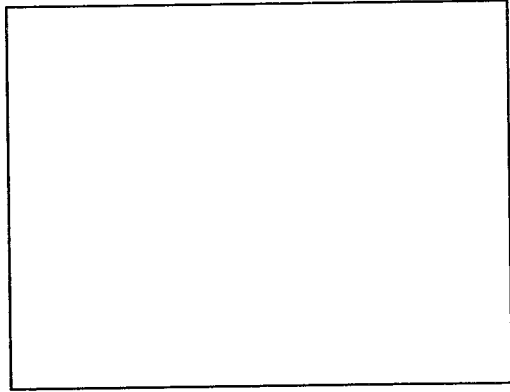
(Karen Goodfellow's Research Journal)

It can be argued that harvesting is an apt metaphor for the process of interpretation in educational research. It is a time for assessing the fruits of one's labours to see what can be used and to what ends. What follows is the harvesting of the results of this thesis; the first part focuses on finding patterns in the harvest of data, while the second offers a distillation of these patterns in order to identify the insights gained from the dissertation's results.

Finding Patterns in the Harvest

The processes of analysis and interpretation informed the patterns found in the harvest of data from this thesis study. These patterns began to emerge in the formative stages of data collection, as is typical in an action research project, and became clearer in the thematic analysis and concept-mapping applied to the data collected through the team meetings, participatory observations, field observations and research journals. These patterns were most apparent in the inspirations the teacher-researchers utilized in the development of their eco-art curricula and in their links to environmental learning, as well as through their definitions of eco-art education and the pedagogy they put into place to implement these lessons in their classrooms.

As I look back over five years of guerilla art gardening at Runnymede, I start to see patterns in my own efforts as a community artist and educator in the school. Of the eight projects I have helped to create, all have been collaborative efforts involving students, teachers and parents - engaging people creatively has been important to me. All of the works have been permanent installations in the schoolyard, fulfilling a desire to make this urban site a more enriching space for the children who play there. They have all incorporated natural imagery, better integrating the built environment of the yard with the school's naturalized garden. Most importantly all of the projects have required the students to look more closely at their local environment to share their observations, ideas and feelings about their local place. So while these weren't all framed as eco-art projects at the time of their inception, I realize in hindsight that I have been developing eco-art curriculum for the last five years in the form of guerilla art gardening.





Inspirations

The team took their inspiration for curriculum development from many sources: materials, places, eco-artists, storybooks and each other. Each of these is worthy of discussion, as they provide insight into the teacher-researchers' working methods and belief systems in developing eco-art education. They also prove useful for providing starting points from which other educators can grow their eco-art lessons in future.

• *Materials*

As there was a strong emphasis in the eco-art lessons on art-making, it was no surprise that materials proved to be a frequent starting point for lesson development with all of the team, as this is a common practice in art education. Sometimes these materials were chosen for their ready availability, as seen in the use of scrap lumber and sticks for the 'Woven Wood Sculptures' or in the use of yarn and branches for the 'God's Eyes'; in both cases these were materials already on hand in the teacher-researchers' classrooms. At other times materials were selected for their familiarity; as teachers and students were already experienced with the use of pencils, crayons and paints, lessons could be completed without a lot of technical instruction. On some occasions materials were chosen for their environmentally-friendly qualities; the use of the grapevine in the 'Basket Fence' project, the ice in the 'Suncatchers' project and the vegetables in the 'Edible Art' sculptures are good examples.

Overall the team agreed, as demonstrated by their choice of materials, that eco-art lessons should use materials that align with sound environmental principles. This translated into materials that were non-toxic, biodegradable, and/or raised awareness about the 3Rs (recycling, reducing, reusing). Examples of the latter were found

throughout the year; both Karen and Anne did lessons on re-using junk materials (ie. those pulled from the recycling box or the garbage) to make sculptures, being sure to point out the environmental benefits associated with re-using these materials. Two classes also experimented with papermaking, an excellent means of introducing recycling.

Natural materials that were environmentally friendly were used in about a third of the lessons as a means of focusing students' attention on the natural world in hopes of better connecting them to its beauty and that which threatens it. This worked well for many students in the inquiry as they made the link between natural materials and pollution; one student in Anne's class wrote " It is eco-art because I used a rock, leaves, rock grindings, sand, and sticks which are all from nature and don't pollute". Teachers and students alike shared this belief, that eco-art should not create any pollution or add to landfill. For some, it also meant that they could reduce their consumption; Dorie noted that using natural materials meant that she could see "my consumables list [of art supplies] getting smaller and smaller and smaller" in future.

Karen raised a secondary advantage to the use of natural materials: their no/low cost and easy accessibility. Referring to her native students in the North, she reflected that

...if you taught in this [eco-art] manner then it excited the students, "Oh I can do art and not just in this traditional art form. And I don't need to have paper and I don't need to have the latest paints and art supplies, right?" And we could easily use twigs and rocks and the river.

Karen's primary class also referred to this in their environmental video, saying that they liked eco-art "because it's cheap. [laughter] And we don't have to buy anything". In eco-

art's use of natural materials, art-making is made accessible to all children, regardless of the economic means of their families or schools to purchase art supplies.

These approaches to materials certainly align well with those commonly used by professional eco-artists. Nature-based, biodegradable materials are found in the work of herman de vries, Richard Long, Agnes Denes, Lynne Hull, Andy Goldsworthy and many others, even though these elementary classes were only familiar with Goldsworthy's work. They also exemplified a secondary trend noted in the literature of using found or recycled materials to make eco-art (Cerny & Seriff, 1996; Elliot & Bartley, 1998; Congdon, 2000). This then supports the notion that elementary children are not only capable of using similar materials as professional eco-artists, but also to similar ends, and shouldn't be restricted to traditional elementary materials (such as crayons, tempera paints and plastecine) in their pursuit of environmental learning.

- *Natural Imagery*

Along with materials as a starting point, the use of natural imagery was used in more than half of the lessons as inspiration for curriculum development. There were patterns in some of teacher-researchers' choices of imagery, most likely related to accessibility or to their own personal affiliations in nature; Anne, for example, often chose tree imagery for her lessons (of which there were many in the school yard), while for Dorie it was flowers. Both of these teachers tended to ask their students to focus on a specific type of natural imagery, while Karen and Astrid typically left it more open-ended for their students to choose the type of natural imagery that appealed to them. Their reasons for emphasizing natural imagery were similar to those for selecting natural materials: to focus their students' attention on the natural world in hopes of better

connecting them to it. In this they were drawing inspiration from centuries of art-making which has also used nature as a common theme. The teacher-researchers cited Emily Carr, Georgia O'Keefe and Faith Ringgold as artists they used as lesson starting points; although these artists aren't typically considered eco-artists, all have used nature thematically in their work.²⁸

- *Eco-artists*

Of course the artist who was utilized most frequently as inspiration for lessons was Andy Goldsworthy. All of the team's classes watched the documentary of his work, and his work was given dedicated study time in three of the four classrooms.

Goldsworthy's nature-based art struck a deep chord, and elicited many positive comments from teachers and students alike. For some students, it was the feelings his work evoked that appealed to them: one of Karen's primary students wrote "Watching Andy Goldsworthy create his sculptures made me feel calm and excited. I couldn't wait to see what it turns out like". Another from her class linked his influence to her own interest in art: "Watching Andy Goldsworthy create his sculpture made me feel happy and interested in art more because [of] how patient and focused he is". In her journal at year's end, Anne also noted his impact:

The study and appreciation of sculptor Andy Goldsworthy's works was a hugely important aspect of our work in eco-art this year. The students watched a video of his work, "Rivers and Tides", and were absolutely mesmerized by his use of natural items to create ephemeral art works.

²⁸ While these were artists whose work had inspired specific lessons for this study, it was apparent that the teacher-researchers were familiar with a much broader range of artists who have dealt with environmental themes, typically through children's book illustrations (refer to Appendix H on page 277 for a list of the books and artist-illustrators they discussed). Interestingly, even though they were eager to share this information at team meetings, none of these books nor their artist-illustrators actually inspired lessons during the study.

They all latched on to the perspective that eco-art derives only from materials in nature. The video was their inspiration for the creation of their ice sculptures, enhanced with pinecones, shells, leaves, twigs and pebbles.

For many of the teacher-researchers and students involved in this dissertation, Goldsworthy's work became the gold standard on which they built their definitions of eco-art and their notions of the materials and techniques that can be used for expression. This is not surprising given the wide appeal his work has held for viewers around the world. But the teacher-researchers' focus on it raises questions, such as can his work be used effectively to engage learners with eco-art education? Given my field observations in this thesis study, along with my experiences with the elementary program at Warren Park Outdoor Education Centre and professional development workshops for teachers, the answer would have to be a resounding 'yes'. His work is beautiful enough to capture learners' attention and yet (seemingly) simple enough to inspire them to try something similar. The second question is, does his work help to improve learners' environmental literacy? Again the answer is affirmative; he focuses viewers in depth on one of the three pillars of ecological literacy, developing a sense of place (Department of Environmental Education, 2001), either through the locales in which he works or in a heightened attention to their own place. His working methods also touch on aspects of ecosystems thinking and human impacts, the other two pillars, through his concern for biodegradability and the inclusion of natural processes in his art. The effects of his work seen in this data certainly suggest that his work is a beneficial inclusion in an eco-art program to inspire learning in and about the natural world.

But these results beg a further question: should his work be the sole inspiration for an eco-art program? Interestingly there is little discussion in the literature of his work as

a model for eco-art education programs, despite its positive reception by the students and teachers in this dissertation. Although he wasn't the only artist discussed in these elementary classrooms, a heavy emphasis was placed on his work to the exclusion of other eco-artists. The teacher-researchers were introduced to resources, such as websites, books, journal articles and exhibition catalogues that describe the work of other eco-artists, but none mentioned using these or other eco-art resources to inform their lesson development²⁹ Was it a lack of time that held the teacher-researchers back from identifying and utilizing other artists, or a lack of appeal of others' work? Or was there something unique in Goldsworthy's work that connected with teachers and students alike? If other artists could be identified whose works held similar appeal, teachers might be more likely to broaden their references and include their work in an art program in future.

- *Place*

Like Goldsworthy's approach to art-making, place also proved to be an inspiration for lesson development. For Karen, her schoolyard and local park were the sites for exploration and provided her class with materials and images to incorporate into projects in class. For Anne, it was her beloved school garden. She was clear at the start that she saw her involvement in this thesis as an impetus to get her students outside and into the garden more regularly, and she aimed many of her lessons to maximize their experience with it. Many of her lessons involved creating drawings or paintings based on

²⁹ I made links to the related scholarly literature in the early team meetings, and distributed copies of Gablik (1995), Birt, Krug & Sheridan (1997), Lankford (1997), Ulbricht (1998), Inwood (2003, 2006), as well as the TDSB's Organizing Principles for Ecological Literacy (Department of Environmental Education, 2001). I also brought in eco-art books, exhibition catalogues and children's books with me to each meeting. Despite this, the teacher-researchers did not refer to these resources in their curriculum development processes, nor did they ask for further materials for reference as the year unfolded.

their first hand observations of its plant life, though a few also placed students in the activist role of garden stewards. Dorie used her schoolyard in a different way, more as a site for the display or exhibition of her students' works. This proved effective in drawing her students' (and others in the school) attention to the natural world as a place of beauty and surprise. Astrid took a different approach yet again, having her school's students draw from their memories of their neighbourhood to inspire their mural imagery. While she cited a lack of time and issues around supervision as factors that limited taking the students outside more routinely, she felt strongly that their place, so near to the lake, was a unique one that deserved special emphasis in the mural.

- *Colleagues*

One final source of inspiration for lesson development should be noted, that being the influence and support that team members drew from one another as the year progressed. While the full effects of the collaborative action research framework will be explored in the next section, comradery and collaboration proved to be the norm on the team, and there were many examples of team members trading ideas, sharing resources and providing moral support to improve their curriculum development. As Anne described in her final journal entry:

Some of the ideas we have mulled over have been the definition of eco-art, the advantages/disadvantages of presenting this perspective to students as an inherent part of their art program, the awareness this perspective has instilled in students toward environmental issues, and our own personal and professional growth in this area. There has also been a wonderful and valuable exchange of ideas and projects that members of our group have used with their own classes and subsequently presented to the rest of us...the fact that we have met often and received nourishment from each other and just what we've been, what I've been able to give that focus has been a really fresh way of looking at art and making art with kids.

Karen expressed similar ideas in her journal entry, which she read to the team at the final meeting:

The process of working with such strong women — all of you, thank you — collaborating on something which we shared a passion about, without the interruption of entry bells and the immediate needs of our students, and often their parents, meant that we could learn from each other, that we could question, that we could build on the ideas of others, and modify projects for our unique situations. It meant that we could truly learn from each other and from ourselves. It meant that rather than trying to compartmentalize, which we seem to be both required and forced to do in education, we could strengthen the web of learning, we could learn from each other, we could inspire our students, and in turn, be inspired and learn from them.

Interestingly this sharing and cross-fertilization of ideas happened best in the face-to-face meetings, but not online. Although all of the teacher-researchers were familiar with and frequent users of email, the conference site that was set up in October (after our first team meeting) went untouched by the team. While online conferences, forums, and chat rooms are proving popular in many education circles, the team chose not to utilize this form of digital communication in the course of this inquiry.

Links to Environmental Learning

Links to environmental learning were made in all of the lessons created as part of this thesis, but with varying degrees of consistency and depth. Certain types of links appeared repeatedly in the lessons, many of which were centred on the natural world: these included observation of nature, use of natural materials or processes, depiction of natural imagery, development of sense of place and discussions of spirituality and nature. Other links promoted strategies for sustainability: discussions of the 3Rs, re-using and recycling of found materials, stewardship and urban revitalization. These are well-accepted approaches to environmental literacy, as is evidenced in the literature on

environmental education (Thomashow, 1995; Russell, 1997; Sanger, 1997; Smith, 2002; Sobel, 2004; Weston, 2004; Working Group on Environmental Education, 2007).

Therefore their application in an eco-art education context was appropriate, and it highly likely that the participating students engaged in some form of environmental learning.³⁰

There were patterns in the types of links used and the ways in which they were employed over the course of the year specific to each teacher-researcher. Dorie's projects emphasized connections to the natural world through observation, a focus on natural imagery and the use of natural materials; later in the year she began relating this to the school's garden, in hopes of grounding her students' learning about nature in their own schoolyard. She had the widest experimentation with natural and biodegradable materials on the team, beginning in October and continuing through June. She was also the only one to introduce the environmental crisis to her class through the viewing and discussion of *An Inconvenient Truth* (Gore, 2006).

In contrast, Astrid's main focus through the school-wide mural project was on strengthening her students' sense of place in their own community, which given their

³⁰ While not the focus of this study, there are indications that the students in this thesis study likely improved their environmental literacy as part of their eco-art lessons. While viewing the gr. 2/3 students' "Solution to Pollution" video might be sufficient evidence in and of itself, Karen also reported that even one of her special needs students fully understood the environmental meaning in their eco-art lessons:

...she was really excited to be part of this, and she wanted to show a poster that she had made about the environment on re-used paper, and talking about how that is one of the ways of eco-art, giving the message, that's the other thing we talked about that it was the message about the environment [that] is also eco-art.

Anne reinforced this in a reflection on her students' work on eco-art installations for the waterfront:

And you sort of hope that they grow in many ways, but to see that kind of very observable growth in terms of their understanding about the environment, about art, and its implications on the environment and so on. So that's been very exciting.

Another study in future is required to more fully investigate and understand the effects of student learning in eco-art education and its impact on students' environmental literacy.

lakeside locale, she related to issues around water. In February, she had felt that this connection was not made as strongly as she would have liked, but in the final meeting, she re-evaluated this in assessing the effects of her students' involvement:

I think they've got a lot out of it. They talk a lot about the whole process...it was their piece of art. They did the sketches and then he [the artist] projected it on the mural. And they were like, "I learned I love art. I learned I love to make art while listening to classical music". They talked a lot about the idea of water and the community...Some of them said, you know, "It made me feel like I'm part of the community".

Like Astrid, Anne's emphasis on environmental learning was also rooted in sense of place, in this case linked clearly to her school garden. Her site-based focus was consistent throughout the year, and provided dedicated time for her class to observe and interact with different aspects of plant, insect and wildlife. She became interested in the use of natural processes in art-making, thanks to Goldsworthy's inspiration, and introduced her students to the concepts of growth, metamorphosis and decay as art techniques. Anne also took her lesson development into the realm of stewardship by using eco-art to ameliorate environmental challenges in the garden. This approach was used to develop her students' attachment to the garden specifically and nature in general, and Anne noted in her journal that she felt this goal had been achieved: "When I reflect on the impact of an eco-art perspective, I think about how these students love this garden, how they feel a real sense of ownership and familiarity with it".

Karen achieved perhaps the broadest set of links to environmental learning, in part aiming to strengthen her students' connections to the natural world, and in part introducing them to environmental issues. The first was achieved through observation of and interactions with nature, art-making with natural materials, and a focus on natural imagery in their work. Karen described the effect on her students of this approach:

...all this eco-art has just brought the kids back to being kids and learning that nothing is insignificant. And so now they're looking at leaves more, looking at bark. We did the tree bark rubbing, and so now they're touching bark when they go walking.

For her, igniting her students' sense of wonder (Carson, 1965) about the natural world was an important component of deepening her students' attachment to the environment. But she also felt it would have a secondary effect: "Sense of wonder and awe, yeah, and beauty. And then they will hopefully take stewardship of wanting to protect it because now they've started to appreciate it, they've started to see it..."

The second part of Karen's approach to lesson development was to openly discuss environmental challenges and model behaviour linked to sustainability (such as the 3Rs). This was evident in the "Solution to Pollution" documentary made by the class, which demonstrated their grasp of not only the environmental challenges facing our world, but also of some of the potential solutions. Karen saw her cross-curricular approach as important in this, as it modeled systems thinking, another keystone in environmental literacy (Department of Environmental Education, 2001).

The three common threads that ran through the team's curriculum development were links made to environmental learning through connecting students to the natural world, developing their sense of place and discussing environmental challenges. Without the team consciously realizing it, these links relate to the work of Chawla (1998) and Sobel (2004) on age-appropriate concepts and themes in environmental education. Chawla's research has identified nature-based experiences with an interested adult as a factor in positive environmental behaviours later in life. Sobel supported this, as he argued that introducing children to environmental ills too early might threaten their

engagement with environmental issues in later life by positing that children ‘tune out’ that which scares them. Instead he proposed that what is needed is exposure to nature in their early years; these experiences will grow an affinity for the natural world that will lead children to want to protect it as adults. Assuming these conclusions are accurate, these teacher-researchers will have given their classes a head start in the right direction.

This collection of lessons has also provided a body of elementary-level exemplars to support the theoretical suppositions about eco-art education made over the past decade and a half (Blandy & Hoffman, 1993; Gablik, 1995; Lankford, 1997; Ulbricht, 1998; Graham, 2007). The teacher-researchers have well demonstrated that eco-art education can be used to support learning about environmental issues as well as generate innovative and engaging art lessons for their students. But did their construction of eco-art curriculum improve their own learning about the environment? Astrid reflected in her journal that she became more aware of water-related environmental issues, and expressed a desire to continue her own learning (and that of her students) the next year by participating in another eco-art project called *Stream of Dreams*.³¹ Dorie noted that she was more attuned to environmental news and information, and specifically watched *An Inconvenient Truth* (Gore, 2006) to learn more about environmental issues to better inform her lesson planning. Anne found an outlet for her strong feelings for the garden, but also recognized that Karen’s activist approach to environmental learning had an effect on her:

I think that what you bring to it is more of an activist ideal. But mine did evolve over the year and it broadened...I think still, at the very foundation for me, is the sense of place and appreciation of what your immediate

³¹ The *Stream of Dreams* Mural Society is an eco-art collective that originated in British Columbia. It aims to raise awareness through community art projects about watersheds, rivers and streams. More information about this program can be found at <http://www.streamofdreams.net/>

surroundings are, as you go out into the world and your surroundings extend. But other layers have been added onto it which are, you know, based on activism, based on that art is very ephemeral and, if you use materials from nature, they can just be art work and just as quickly disappear...I just as much got new levels of understanding out of it, too. So it was a very, very beneficial experience.

As a teacher active in environmental education prior to this thesis study, Karen didn't feel that she expanded her knowledge of environmental issues, but did find validation for her beliefs through the support of the team. In this she was able to make links to environmental learning for her students, but also extend her influence to others in her school community. At the last meeting she stated:

Being a part of this team empowered me to take more leadership at work, to reach out more to like-minded families at school to help educate others about the importance of integrating ecological literacy in all that we do. This enlarged the circle and in turn empowered other children and parents to have a stronger voice and sense of ownership.

So their involvement in eco-art education did prove to be a catalyst for environmental learning for some, but for others it took their learning in new directions, ones that allowed them to more effectively share their existing knowledge about the environment with learners outside their classrooms.

Defining Eco-Art Education

Another pattern evident in the data was the role of the natural world in defining eco-art and in turn, eco-art education. We returned to this topic in varying degrees at each team meeting, perhaps raising more questions than we ultimately answered. The topic proved intriguing to the team members (and in some cases their students) as it acted as a filter of sorts, helping teachers and student-artists alike to establish a set of criteria

for art-making that was not only environmentally-friendly in its use of materials and techniques, but that was also environmentally-attuned in its meaning.

While natural materials, techniques and/or imagery lay at the heart of many students' definitions of eco-art education, it became apparent in reviewing the data that materials alone did not define eco-art lessons for the teacher-researchers in the inquiry. What was more important was whether the materials, techniques or imagery were used in conjunction with a theme or a set of ideas that raised awareness of humans' relationships with and/or impact on the earth. In many cases, these connections were made explicit at the start of the lesson, such as teaching the concept of recycling as a part of papermaking. But in others the connection was made after the work was done, as in Dorie's exhibition of traditional watercolours as part of her class's eco-art exhibit in the school's garden. Therefore the links to environmental learning occurred in some lessons more strongly than others and at different times in the creative process, but the connections were made at some stage, making their classification as eco-art appropriate.

The team's discussions by year's end suggested that there was a need for coherence between the physical aspects of an art lesson (the materials and technique) and its conceptual basis (the environmental theme, idea or message) in order to be considered an example of eco-art education. Sometimes the message was inherent in the use of specific materials; an example of this was found in the ice sculptures that were intended to melt, leaving only a small amount of biodegradable detritus as their end. In other lessons, the message took precedence over the form of the work; using commercially produced paper to make posters about the environment exemplified this different approach. While there was consensus that it would be unethical to create eco-art in

elementary classrooms that was polluting or somehow damaging to the natural world, the reality was that the use of any materials, natural or manufactured, have an environmental impact. So each teacher-researcher had to arrive at her own level of comfort, dependant on her environmental knowledge and previous experiences, about the degree of eco-friendliness of specific art materials (like tape, glue, markers and plastics), and set this in relation to the strength of the environmental message that the materials would communicate.

Karen provided some resolution to our discussions about eco-art definitions in the final team meeting. She concluded:

Maybe it doesn't need to have one clear definition. Perhaps the simplest definition is that eco art is all art that conveys a respect for the earth, for our natural environment, the interconnectedness of our eco systems, and the importance of ecological literacy...I mean, I think when you talk about sense of place, I think the bottom line for me was always respect. And the kids got that very strong message — respect for self, respect for others, respect for community, respect for the world, respect for everything in it.

All of the team agreed with this statement; it identified the purpose and values at the heart of eco-art education for many of us, while at the same time beautifully articulating a rationale for its presence in elementary classrooms. What the team didn't discuss, however, was how well this statement aligned with current theoretical thinking on eco-art definitions. Rosenthal (2007) proposed that the common link between the diverse set of objects, installations and performances considered to be eco-art are foundational values; respect is inherent in many of the values she identified. Of the seven she listed, it was interesting to note that many were manifested in the eco-art lessons of this inquiry, including a land ethic, systems thinking, sustainability, social and environmental justice, collaboration, and integrity. So Rosenthal's understanding of the common basis for eco-

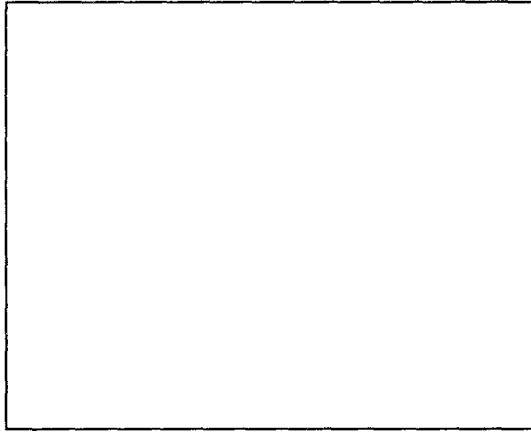
art is applicable not just to work made by professional artists, but has also proved to be relevant to eco-art programs for elementary students as well, this suggests that the work, whether made by professionals or novices, shares a conceptual base in terms of its intentions.

Pedagogy

Towards the end of the school year, patterns began to emerge in how the teacher-researchers were presenting and implementing eco-art lessons with their classes. Dorie's pedagogical approach was more traditional in that she preferred delivering lessons with clearly defined beginnings and endings. She integrated other subjects into about half of her eco-art lessons, but also maintained strong links to the elements and principles of design components in the provincial curriculum for visual arts. Anne utilized the school garden frequently as a site of learning, getting her students outside as often as possible. She was also focused on integration, combining other subjects with eco-art in about three quarters of her lessons. But she was less concerned about letting the curriculum expectations lead the way:

I've sort of come to a point in my own professional career where you just go full steam ahead with ideas that you come out with and then you just work the curriculum into that and it will all fall into place. So I don't sort of start with [the provincial] curriculum and say oh, this has to fit into that particular narrow space. I see Art and Eco Art specifically now just as a very freeing thing.

Karen's approach was less focused on traditional lessons, and aimed more towards a seamless weaving of eco-art and environmental concepts and experiences into the curriculum more generally. She often wove one lesson straight into another, and like



What is interesting to me is that the guerilla art gardening projects at the school have much in common with the artworks created by the teacher-researchers and their students. These works focus heavily on connections to nature, to the exclusion of any imagery related to the built aspects of the community. They have helped students make links to environmental learning through developing their sense of place in their community, or by functioning in a stewardship capacity to mitigate human impacts. They have balanced process and product well, resulting in meaningful learning experiences for students as well as inspiring artworks for the community. In this, I can't help but notice that my definition of eco-art education was playing out in ways similar to those of the teacher-researchers in their schools. Did I influence them to work in these directions, or are these characteristics of eco-art education that will surface in any context of learning?



Anne, let her students' enthusiasm and engagement dictate the frequency and length of the lessons.

Astrid was the one teacher-researcher whose approach varied widely from the others. As she had strict time limits for her lessons as part of the EcoClub, her two lessons were both quick 'make and takes.' She found it difficult to integrate eco-art into the subjects she taught to her two half-day classes as she didn't teach them art, but was able to involve her whole school in one large undertaking in the form of the mural project, an approach that no one else tried. As all of the students (and their teachers) were involved in the mural, it was problematic for Astrid to integrate other subjects into learning on this project as this would have changed from one grade to the next. (This isn't to say that it didn't happen, but that Astrid may not have heard about it). It was also not geared to specific curriculum expectations; this was up to each teacher to identify which expectations were appropriate for their specific grade level.

- *Promoting Hands-on Learning*

Despite these differences, there were a number of pedagogical strategies that were utilized frequently in many of the eco-art lessons of the inquiry. Whether done consciously or not, the teacher-researchers were drawing from and modeling contemporary teaching strategies from environmental education, art education, and teaching practice in general. What became evident in a review of these was how well these strategies complemented each other, despite their roots in different subject areas. The vast majority of lessons were experiential in nature, an approach used frequently in both art education and environmental education. All of the teacher-researchers

encouraged hands-on learning, having their students work with a variety of natural, found and art materials in both two- and three-dimensional formats. Putting experiential learning into play is considered sound pedagogy in both art education (Chapman, 1992; Naested, 1998; Anderson & Milbrandt, 2004) and environmental education (Russell, 1997; Working Group on Environmental Education, 2007). As Karen noted, hands-on learning allowed all of her students, even those with special needs, to feel successful in the eco-art lessons, as it appealed to the way in which many of them liked to learn.

- *Exposing Students to the Natural World*

As part of this, the team used their eco-art lessons to expose their students to the natural world, either through direct contact, the use of natural materials, or by sharing images of nature with them. Anne believed strongly in the power of connecting them to natural places, but also had a secondary motivation in mind:

I know we're all aware and try be aware of multiple intelligences and multiple skills and everything that kids bring to this. Clearly, one of the intelligences is, in fact, natural intelligence, isn't it? And so you can just see where some kids, they're so comfortable in that kind of setting and doing that kind of activity.

She noted that some of her students thrived when learning outside, as they found a connection there that they lacked in more traditional approaches to learning inside a classroom. This supports the growing recognition of the benefits of using nature as a means of learning (Weston, 2004; Sobel, 2005; Louv, 2005), along with the realization that the four walls of most classrooms offer a limited environment in which to help children learn about the world around them. Although all of the team seemed in agreement about this approach, Anne and Karen took their children outside to work in the school garden, yard or local park as frequently as they could, while Dorie and Astrid

made more of an effort to use natural materials or exhibit their students' art outside to help build this connection.

- *Exploring Place*

As an extension of this, all of the teacher-researchers focused on explorations of place in many of their eco-art lessons. Anne, Dorie and Karen often had their students drawing from plants as a way to develop their students' observation skills; Astrid had them drawing aspects of their built and natural environment for the school mural. Anne believed that this strategy achieved its goal, of better connecting students to the natural and urban spaces in which they live:

I thought coming into this, the important focus was sense of place for me, and that place is the nature at school. So everything that we did started with that focus. And I think the kids came to absolutely adore [the garden], that's their place, they do love it. And I think that what then, hopefully, springs from that is that it becomes a life-long sensitivity to spaces in nature like that, natural environments.

In this the team was providing support for the place-based education movement, whose proponents (Sanger, 1997; Smith, 2002; Sobel, 2004; Powers, 2004) advocate for using the local community as a compelling teaching tool. They argue that place is an effective means of encouraging cross-curricular learning as well as attuning learners to the environmental, social and cultural needs of their community. Many art educators agree, and have voiced their support for better grounding art education in a place-based approach (Blandy & Hoffman, 1993; London, 1994; Lippard, 1997; Anderson & Milbrandt, 2004; Graham, 2007; Gradle, 2007).

- *Focusing on Age-appropriate Activism*

Of course there were many examples in the teacher-researchers' eco-art lessons of support for learning about the environment through their pedagogical choices. Some were content-based, as when Dorie showed the class "*An Inconvenient Truth*" (Gore, 2006) as a means of increasing their knowledge of the environmental crisis. But most of the lessons employed more subtle strategies so as not to overwhelm students with potentially frightening information. Most of the lessons aimed at empowering students by encouraging them to take preventive action (like recycling as a part of "Papermaking") or raise awareness about the issues (as in the "Rainforest Batik" or "Solution to Pollution"). Given the age of students involved (6-11), the focus on this age-appropriate activism was a sound strategy to avoid the information overload or scare tactics sometimes used in environmental education in the past.

- *Framing Lessons as Eco-Art*

Another strategy the teacher-researchers used to link to environmental learning was to frame lessons with an eco-art lens. By identifying a lesson as eco-art, the team brought otherwise traditional art lessons into the context of environmental learning, getting students to look at materials, techniques or themes from an alternate perspective. Anne did this skillfully with her class's study of Emily Carr by asking them to consider whether Carr was an eco-artist; this forced the class to consider whether this historical artist's work dealt with environmental issues, and if so, in what ways? Many of the students considered not only Carr's imagery in their responses, but her use of materials and her love of the rainforests of British Columbia. Dorie also used framing as a pedagogical strategy in her class's culminating eco-art exhibit; by including still lives of

flowers as part of the work on display, she gave viewers a fresh set of eyes from which to understand these traditional works, ones that focused attention on the natural world as an integral part of the environment.

In Karen's class, this framing strategy turned up repeatedly, by putting an environmental spin on the "God's Eyes" sculptures, the wall hangings, the "Wish Scrolls" and the "Earth Wanderings Quilt". Quilting has often been presented to introduce equity and social justice issues or themes in history and geography; by framing it as an example of the 3Rs and environmental expression, this primary class led viewers to consider the technique in a new light.³² As framing is not discussed in the literature in eco-art education as a possible pedagogical strategy, the team's frequent use of it may prove to be an intriguing new contribution to the field.

- *Creating Art Collaboratively*

Karen's quilting project also embodied another pedagogical strategy found commonly in the team's lessons, that of collaboration. Collaborative approaches to art-making were used in about a quarter of the lessons, with each class participating in at least one major project that required the class to work together. For Dorie's class it was the year-end eco-art exhibit; for Astrid's, the school mural. In Anne's they made the woven basket fence and the ice sculpture installation as a class effort, and in Karen's collaborative art-making was found in the drums, the quilt, the nature-based installations

³² In fact Karen may have covered all of these angles in this project. Karen introduced quilting in the context of her unit on the Underground Railroad and slavery in pioneer times (part of the grade three Social Studies curriculum). In the course of the accompanying lessons, she also discussed the work of Faith Ringgold, a prominent African-American artist who uses quilting in her work. The class decided that their collaborative quilt should express an environmental message, and created a poem together for the border that read: "Magic weavers, make believers, make the earth greener. Make the earth what it's worth so animals can give birth. Global warming is people swarming, putting garbage on the ground. In the dump they pound the garbage making a mound". Their quilt would have made a terrific contribution to the *Green Quilt* project, an archive of quilts with environmental themes (described in Blandy & Hoffman, 1993).

(at the outdoor education centre) and the video. Watching this strategy in action was a pleasure, as evidenced in my field notes from the ice sculpture installation:

What amazed me most about this was the dedication with which most students approached the process of assembling the ice sculptures – astounding! A bone-chilling day, but most of the class lasted an entire hour out in the garden, intently focused on the creative process. There was amicable discussion around where the shapes would fit together, and experimentation around the best way to join the pieces together. (They decided on a mixture of snow and warm water). Negotiations were open, supportive and collaborative.

These projects created an atmosphere of positive co-operation, of students and teachers working together towards a common goal. Not surprisingly many of the projects were also place-based, and in this exemplified the pedagogy of collaboration and co-operation inherent to place-based education (Sanger, 1997; Smith, 2002; Sobel, 2004).

- *Emphasizing Process in Art-Making*

These same lessons placed a strong emphasis on process, rather than the focus on product so often found in ‘make and take’ art education programs. This was also found in many of the eco-art projects that used natural materials and sites as their inspiration. By highlighting process as an important part of the creative act, the team was setting art-making in relation to the natural processes of growth, change and decay, and reinforcing systems-thinking, an important component of environmental education (Department of Environmental Education, 2001; Rosenthal, 2003; Working Group on Environmental Education, 2007). It also encouraged students to experiment with ephemerality as an art-making strategy as a way to integrate process into their work. Anne addressed the unintended results of this teaching strategy on their ice sculpture installation:

Our plan was that we would, together, assemble all of the individual ice pieces, making artistic and structural decisions along the way. Then, over

time, the sculpture would melt, leaving in its wake all of the natural objects that had been imprisoned in the ice blocks. The random placement of these natural objects would also be part of the art work...The plan was also to photograph the sculpture in its various stages of melting, but alas, this was not meant to be because the art work was vandalized before we could get to the filming stage. The kids were absolutely devastated by the wanton destruction of their art work. However, they have great memories of making it, and it has, indeed, become part of the earth again, just as it was originally meant to be.

No doubt the teachers and the students were influenced in accepting the natural effects of process through their introduction to the work of Goldsworthy, in which process is central. Anne noted the importance of this in her journal:

We talked about what Goldsworthy meant when he said, "The very thing that brings this sculpture to life, will bring its death". Thus, the students were introduced to the ephemeral notion of eco-art, and were quite fascinated. They also picked up on the idea that in creating this artwork, no materials were used that would impact negatively on the environment – the sculpture would simply return to the earth.

- *Connecting to Professional Artists and their Work*

This strategy, of connecting their lessons to the work of professional artists, was used by all of the members of the team. In some cases this was through the study of these artists' work (Goldsworthy, Jungen, Ringgold) through reproductions or in one instance, firsthand in a gallery visit (Carr), allowing students to access their work collectively as well as individually and consider it in light of the eco-art frame. What interests me, though, is why the team focused solely on the work of Goldsworthy, to the exclusion of other eco-artists. With such a wide range of eco-art available to view on websites such as Green Museum, these programs might have been all the much richer if a wider set of eco-art exemplars had been used.

In other instances, the teacher-researchers brought practicing artists into their classrooms to facilitate special art projects like the mural, the batiks, and the clay projects. This brought multiple benefits: it introduced the teacher to the materials and pedagogy of an art technique she wasn't familiar with, and also exposed students to a working artist as an artistic and environmental role model. This latter strategy, of providing access to experienced and knowledgeable mentors about the environment, was a great choice as it is considered an important factor in developing environmental literacy in children (Chawla, 1998; Orr, 2002).

- *Integrating Across the Curriculum*

Cross-curricular integration was another pedagogical strategy frequently used in the eco-art lessons in the inquiry. Although all of the lessons integrated the visual arts with environmental concepts in some way (as has been previously discussed), just over half included integrations in other subjects as well. Astrid took an integrated approach to her EcoClub by using music, science, art and language arts to support environmental learning; in the time frame available, however, each activity had to be presented independently. Dorie and Karen, on the other hand, integrated three or more subjects into half of their lessons, while Anne achieved this in three-quarters of her eco-art lessons. Language arts was the most popular subject to be incorporated along with art and environmental education; students described eco-art they had seen or made, wrote poems to complement their own work, or made signs to promote exhibits or concepts. Social studies was also integrated often, touching on the themes of urban and rural

communities (gr. 2), pioneer studies (gr.3), ancient civilizations (gr. 5), social justice (gr. 5) and urban revitalization (gr. 5). Other subjects such as science, outdoor education, music, health and math were integrated less frequently.

Most of the teacher-researchers felt that the process of integration was a natural one to undertake in eco-art lessons; for them it was an extension of their usual approach to teaching. Dorie summarized this in one of the last meetings by saying that “I’m still trying to integrate as many things into the topic as I can. I don’t think I’m really changing...but I’m much more aware of the eco-art component”. Karen agreed with her sentiments:

Most of the projects that we did this year were integrated into social studies or literacy. And that’s just what I do. I mean, one of my colleagues said “Well I don’t integrate too much. I think it’s hard to do it”. And I’m thinking “Hard to do”? The only hard thing for me is that I see too many integrations.

- *Utilizing Systems Thinking*

Interestingly Karen struggled at times to describe what was happening in traditional subject areas (such as science) in relation to her eco-art lessons. As both she and Anne tended to present cross-curricular units of study with all subjects linking to a common theme, it may have been harder for her to articulate the differences between the art, literacy and science components, as they were seamless in their construction. This was indicative of the use of systems thinking in her approach to curriculum design and implementation, of which she was cognizant:

...with eco-art, I think it’s been such a focus on systems learning and style, everything being connected, looking for interconnections, looking for context, looking for relevance. And yeah, I think their experience has

been so much richer than just getting a unit on the environment or just, you know, a bit of art that overlaps.

In this, Karen and Anne were aligned with the philosophical stance and pedagogical strategy of systems thinking recommended in Rosenthal's (2003) approach to eco-art education, and in more contemporary approaches to environmental education (Orr, 1992; Department of Environmental Education, 2001; Sobel, 2004; Working Group on Environmental Education, 2007). System thinking, though certainly not a new concept, positions all things in relation to their context and as interconnected, and is an important tool in encouraging environmental literacy (Orr, 1992; Thomashow, 1995; Sobel, 2004).

Astrid was the only teacher-researcher who struggled with the integration of eco-art into her curriculum, due in part to the time constraints of the EcoClub meetings, and in part to the structure of the mural project involving all the classes in the school. She recognized the value in doing integrated learning, and felt frustrated that she couldn't do more with her classes over the year. She did find the others' recounting of their integrations useful, and speculated in the final meeting that she may be able to do more in her new role as a teacher-librarian the following year:

...you've all sort of taught me that you can do it, that you can integrate it, that it doesn't have to be [separate], just because I'm going into the library doesn't mean I can't do it. And I probably should have thought that way this year as well.

- *Modelling Enthusiasm for Eco-Art Education*

One final strategy that the teacher-researchers put into play as part of their eco-art curricula was sharing in and capitalizing on the excitement of their students' learning.

Anne remarked about this:

...that's learning that really stays with them, too. I just see, the kids are so excited, any time we do anything like this, we just end up spending the whole day if not much more time than I originally anticipate because you just follow their lead. They're so excited, how can you not continue when they're so, they're excited...

While the range of lessons certainly fueled student interest in eco-art education, part of their excitement could most likely be attributed to the enthusiasm for the topic demonstrated by their teachers. Each of the team had taken time early in the fall to explain their involvement in the inquiry to their students, and to talk about what the other classes were doing in eco-art as the year progressed. Dorie speculated about the effects of this strategy:

I'm wondering if that's because we're excited about it and that transfers as well. I think I'm more interested because it's something new, haven't done it before...I just wonder if that's part of it, why they're so engaged, maybe because we are.

It is my supposition that demonstrating a passion for eco-art and a dedication to learning about it came easily to these particular teacher-researchers, whose enthusiasm for and commitment to life-long learning has been discussed in earlier chapters. But was the modeling of excitement and interest in this topic, along with the other strategies discussed, something particular to eco-art education, or part of their typical teaching practice? About her pedagogical approach to eco-art, Dorie modestly answered:

I think it's remained stable for me. I guess it's a pretty wide range of ideas and I don't know that I've added anything to it. I mean, it's very open-ended, I think anything can be environmental art. I guess, if nothing else, I'm going to be much more aware of what I use for art...

Karen admitted that “it's pretty much the kind of stuff that I was doing... except maybe just doing it a little more often”. For many on the team then, these strategies were an

existing part of their pedagogical repertoires, and not something they took on specifically to teach eco-art lessons.

So if these pedagogical strategies were a part of their general approach to teaching, does it neutralize the status of these strategies as a pedagogy specifically for eco-art education? I would argue that it doesn't, as good teaching practice is not particular to any given subject but to a way of conceiving teaching and learning more generally. What the team did accomplish by using these particular strategies was demonstrate that the pedagogy recommended by many leading edge environmental educators can also be applied to eco-art lessons to engage elementary students in learning about the environment. It may also provide encouragement for those teachers still working with more traditional approaches to teaching to apply experiential, collaborative, integrated, or process-oriented approaches to their art lessons and other areas of the curriculum in future.

Reflecting on the Growing Season

While the team spent considerable time discussing and reflecting individually and collectively on their approaches to eco-art education throughout the year, it wasn't until the last two meetings that they started to consider broader patterns in their curriculum development. They identified the advantages of eco-art education for their students, and talked about the challenges of and barriers to its implementation. They were also frank in discussing the effects of the inquiry's framework of collaborative action research on their curriculum development in this area. Since that time, reviewing and analyzing the data of this thesis has helped me to extend and condense their initial layers of analysis as a means

layers of analysis as a means of reflecting on the growing season that propagated their eco-art curricula. What follows is a summary of the thematic analysis of their comments in these meetings and their research journals that traces the advantages, challenges and barriers to eco-art education in elementary classrooms.

Advantages of Eco-art Education

The teacher-researchers' support for eco-art education became clear as they identified its many advantages, from the excitement it generated in their students to the ease with which they were able to link it to other parts of the curriculum. They were quick to point out its practical advantages; by using fewer commercial art materials, they were able to reduce their consumption of traditional art materials and save money in their classroom budget for other things. Although this was certainly a fiscal advantage, they also believed that it promoted links to environmental learning by modeling ways to reduce, reuse and recycle rather than spend, consume and pollute. In this, they exemplified the recommendations of authors who have created collections of nature-based studio ideas for children in recent years (Martin & Cain, 2003; Luxbacher, 2006). Even one of Karen's primary students demonstrated her understanding of this (while simultaneously appreciating its artistic benefits): "It's hard to draw a tree, except with sticks and leaves it's easier to make things. Also it's not hurting the environment or the rainforest".

The advantages of using natural materials as a part of eco-art education to support environmental learning have been highlighted previously in this chapter: it helps children connect to nature (especially if art-making is done outside) and better attune them to the needs of the natural world. But Karen saw this from another vantage point, noting that

the use of natural materials made art-making more accessible to a broader range of students:

I just think what excites me about it is it makes art more accessible to so many children, because so many kids get hung up on "I'm not an artist, I can't do this" and they've been given this message at home. But if you tie it into eco-art, it just, it's that whole sightseeing or sense of place...the kids are starting from what they know.

Her students' comments supported this, as a number spoke of looking forward to making art on their own based on their experiences in eco-art during the year. One said:

Watching Andy Goldsworthy create his sculptures made me feel really confident in myself because I like doing art out of nature... I am an eco-artist too because I make nature art every time I go up north...It is fun!

Anne had been articulate throughout the inquiry as to another key advantage of eco-art education, that being its ability to strengthen her students' connections with place. It provided her with the impetus to get her students outside into the school garden and utilize it as a rich learning ground, where her students could observe and interact with its collection of plants, insects and wildlife. In this she shared the perspective of many environmental educators who have seen the benefits of better connecting children to their local places (Thomashow, 1995; Sanger, 1997; Smith, 2002; Sobel, 2004). She and Karen believed that developing their students' sense of place was linked closely to their environmental learning, especially in terms of encouraging their inclination for stewardship. Anne noted her belief that for some students, the activation of their naturalist intelligence was crucial to feeling successful in school, as they struggled with more traditional approaches to learning.³³

³³ It was interesting to note the strong emphasis given to nature in the class's exploration of place; only two projects explored the built aspects of their neighbourhoods (Astrid's mural project and Karen's urban/rural drum collages). This demonstrated that the team's definition of environment tended towards the traditional by positioning nature as something precious in a city environment that needed to be nurtured and protected.

The ease with which eco-art could be integrated with other subjects was another of the advantages the team identified. Many of the teacher-researchers spoke of its flexibility in helping to achieve curricular expectations in visual arts, language arts, science and social studies. These integrations came naturally and did not need to be forced, as others have found in eco-art lessons (Birt, Krug & Sheridan, 1997; Anderson, 2000; Holmes, 2002). The team also considered it a great benefit to be simultaneously instigating environmental learning alongside the traditional subjects endorsed by the provincial curriculum; although they were committed to including environmental education in their classrooms, they were also cognizant that there is no separate set of curriculum expectations for it in Ontario.³⁴ While they might not have been supportive of a separate set of environmental education expectations (as there are so many to achieve already in other areas), they were pleased to be able to integrate learning about the environment into existing subjects so easily with eco-art education.

The team was equally pleased with the positive responses they received from their students about their involvement in learning about and through eco-art. They saw this manifested in many ways: expressions of excitement at the start of lessons, a high degree of engagement during the lessons, and positive feedback at their end. When asked what they thought of their year's learning with eco-art, one of Karen's students said "I felt really great! It was sort of a new experience for me. I felt better than I do with the other art". Another remarked "I felt more creative with myself and my mind".

³⁴ This is already changing. Starting in 2007, as the Ontario Ministry of Education reviews each set of subject-specific expectations, they are adding ones that target environmental learning in each subject. The approach is one of integration, yet the result will be a strong environmental education agenda woven throughout the traditional disciplines endorsed by the provincial curriculum.

Karen found a particularly high level of excitement during the creation of the 'Solution to Pollution' video. She said "it was really neat with all the kids and they were so excited to be on the show and teach other people, teach teachers and parents and kids and give their message around". At the end of the experience, she noted that "they were just so excited by it, so engaged, and they were transferring all the environmental education content to everything". Interestingly, she wasn't the only one who noticed how enthused the students were about this project. She described how "one of the mums works for the Ministry of Education and afterwards she sent a letter to the principal and basically said "I was so excited, I've never seen my kid so engaged" ". This convinced her of the power of their learning experiences in this and other eco-art projects throughout the year.

One unanticipated benefit that the teacher-researchers experienced as part of their involvement in eco-art education was a shift in the ways in which colleagues viewed them. Astrid found that she got credit for facilitating the mural project from her principal, and praise from her fellow teachers. Anne enjoyed the opportunity to model eco-art for other teachers, and was pleased with their interest and positive feedback. Karen saw a decrease in the amount of ribbing she took from colleagues:

I was always doing a lot of this kind of stuff and I had the reputation that I mentioned at the beginning of the year about being the tree-hugger, "She's going to bring the tree in for us all to hug" and that kind of thing. But I've found that people have backed off on the teasing now, actually. Which is interesting. It was always done positively, you know, and like "I don't know how you do it, but we admire you for doing it. We think you're mad". But it's all kind of backed off now.

And Dorie found herself with a new moniker:

I think I'm maybe viewed as the teacher in our school who does the art, the 'Environmental Art'. I think it's helped with the eco-schools

certification and that's been nice. I think it's been appreciated by the others as something different. So that's made me feel really good. It's been very positive.

These reactions confirmed that their participation in the project had been positively received by students, colleagues and parents in their schools, and that eco-art education had benefited not only their students, but them personally.

Challenges of and Barriers to Eco-art Education

Along with these advantages came some challenges in implementing eco-art education. These made teaching and learning in the area tricky at times, but didn't stop the lessons from going forward altogether as a barrier would. Some of the challenges were not particular to eco-art, but ones facing the teachers in the regular course of their duties. These included issues with student behaviour and not having sufficient time to follow through with activities to their fullest, both of which are encountered in any subject area. Karen struggled the most with the first, due to the high number of students with special needs and learning differences in her class. She voiced frustration with not being able to take them outside as much as she might have liked to, and with their slow pace of learning; despite this, she managed to implement twenty lessons, the highest number of the team, as well as achieve some of the most integrated lessons in the inquiry. This suggests that these challenges were not sufficiently overwhelming to become barriers.

Dorie found that she needed more time than usual to prepare for some of the eco-art techniques like clay and papermaking. Astrid was in agreement, and was articulate throughout the year about her struggle with time. She saw the lunch meetings with the

EcoClub as inadequate in the amount of time available for doing all that she wanted, particularly in terms of the depth of learning she wanted to achieve. Of this she said:

...my feeling about the whole thing was that when we even did the pieces with the kids with the leaves and the branches and things, I just felt that the education didn't attach to it because it was the EcoClub and we were doing it in such a hurry. And we were trying to get something for them to do that they could enjoy but that there was a disconnection between what we were trying to, you know, organizing or recycling and turning off the lights, and doing all this, and doing the art.

In a later meeting she extended her thoughts on this. When asked whether there were drawbacks to eco-art education, she replied:

I don't think so, as long as there is more to it than "Just Doing It". There needs to be an awareness of the impact that we have on our environment. Just putting together a sculpture out of recycled items does not demonstrate the ideas and concepts that students need to "Be the Change".

Astrid was alone in this concern, as the others didn't have the same time restrictions as she faced. While they felt that they could always use more time for lessons, they believed that their classes were able to connect to the concepts of environmental learning that they intended. Instead, the challenges that they noted were of a more practical nature. Anne described one lesson in which the challenge was the weather:

...they were doing drawings of trees [in November]. And they kind of rushed through them to get them done because they were freezing, their hands were cold and you know, just even holding the conté was difficult. And they were quite anxious to actually finish the drawing and then get on a do a bit of the fence weaving. But that really, it was like they had to run around because they just had to find a way to keep warm. So that's the only thing, if they're sitting still drawing, and it's colder, it's a little more difficult.

Yet this was not an overwhelming obstacle. Anne noted in a journal entry later that her perception of the challenges of eco-art education had changed over the course of the year:

Prior to this year, I might have said that some of the limitations of eco-art and its necessary expression in outdoor spaces were weather constraints and lack of direct curriculum links to study in the Nature Garden. My experiences with the eco-art group, however, have encouraged me to see well beyond these supposed limitations. Proof positive – my students built an ice sculpture in what must have been the coldest day of the year! We also spent a lot of time developing activities which were linked very specifically to current curriculum expectations, and these ideas were also shared with the staff at my school at the beginning of the year in a wonderful outdoor event in the garden.

As Anne's class spent the most time outside, weather was a challenge for them more than others. Dorie's class was blessed with a sunny day for their eco-art exhibit, which would have needed re-locating or re-scheduling if it had rained. The former would have been more than an inconvenience, as moving it inside would have greatly altered its meaning and impact.

All of the team found that there were challenges with the wider range of materials and techniques that they were using, both inside and out. Part of this stemmed from the proper resources: Anne noted that her class needed drawing boards for working outside, whereas these are unnecessary inside. Astrid's school needed a larger room for its mural project, as the only one available was cramped for a whole class to work in at the same time. Karen and Dorie borrowed the kits needed for papermaking from me, as neither had them on hand. Interestingly not one of the teachers mentioned a lack of resources or materials for their projects, a common complaint that has held some teachers back from doing art lessons with their classes. This could have been due to the socio-economic status of the communities in which these schools are located, or to the resourcefulness of this particular group of teachers in finding what they needed.

The teacher-researchers did speak of the challenges of support for eco-art education, as they sometimes found that they lacked the support they needed. One form

of support that the team discussed as important was that of their principals, in terms of being allowed to proceed with innovative projects. Dorie's principal asked her not to go forward with one project as he worried about its effects on the students' clothing and the ensuing complaints he would receive from parents. Astrid's principal didn't follow up on plans for the mural project, resulting in the timing being bumped to a later (and busier) point in the year; she also struggled with how to deal with the obstacles around its installation. But Karen's perception of a lack of support from her principal proved to be unfounded: being involved in eco-art education forced her to ask her principal for things she normally wouldn't have, like clay for the 'Butterfly Relief Sculptures'. She was pleasantly surprised to discover that her principal was happy to support this project as well as approve other requests she made.

The second kind of support the team required was in the form of an extra set of hands. While they didn't need the help of another adult with every lesson, it proved essential with the lessons with more complex materials or techniques. Anne noted that she wouldn't do batik without the support of an artist in her class, nor would she have attempted the 'Grapevine Basket Fence' if I hadn't provided an extra set of hands; the same was probably true for the clay projects in Karen and Dorie's classes. Karen drew on the help of a parent volunteer for editing her class's video project, as this was a task that her students were too young to do themselves. And Astrid spoke candidly of the need for collegial support for the extracurricular work in her EcoClub:

I find that even in the school, being an Eco-school, you really need a lot of support to be able to get these things done. And we have maybe 20 teachers and maybe 5 of them who are on the same page as you...So I think maybe all it did was teach me that I have to sort of do it on my own. Not that nobody else is necessarily supportive, it's just that everybody else has their own thing that they're interested in, their own - I mean, all of us

are overwhelmed with what we're doing. So if you're really passionate about something, you're going to need to get up and go with it.

A third form of support that the team identified they would have liked was easier access to printed or digital materials for eco-art education. Dorie would have liked a book list and access to a wider range of films on art and ecology. Karen thought that a digital camera and accompanying printer would have made her work easier. Astrid would have preferred “materials and/or finding time to develop materials that meet the needs of all students, in all areas (reading materials at grade level, curriculum plans for all areas which focus on Environmental Stewardship and include cultural diversity, etc.)”. While they recognized that one of the goals of this inquiry was to create these types of resources for teachers, they were provided with articles and a bibliography at the start of the project as well as exposure to books, websites and learning materials throughout the year, but none of the teacher-researchers mentioned their use or importance in their planning or implementation of lessons as the year unfolded.

So while this lack of support, along with the other challenges of learning in eco-art, did not stop any lessons from proceeding, it did mean that the teacher-researchers had to show a greater resolve and ingenuity to move ahead with what they envisioned. All of the team was in agreement that the advantages of eco-art education far out-weighed its challenges, and that there were few barriers to its implementation. Although most of the team considered a lack of time to be a challenge, Astrid cited time limitations as a barrier for her, perhaps due to extenuating circumstances:

I know I overextended myself in too many areas, was basically what went wrong... I think, for me, personally, next year, I'm not going to do as many things. I mean, I'm chair, I'm the Report Card administrator. I run the EcoClub which I see the kids every week. I do the back-stage managing for our musical which is a big thing. I went to Ottawa [on a

school trip]. *And then there was a lot of personal home stuff, I mean, my family is fine, but a lot of illness. So the barriers basically would be life [laughing].*

With this statement Astrid demonstrated that she had taken on a lot of leadership in her school, and that she had felt overwhelmed by these responsibilities. So it wasn't that eco-art education proved difficult to implement, but that she simply did not have the time required to develop new curriculum this year.

Effects of the Collaborative Action Research Framework

One final area of this dissertation that has produced a yield is the effect of the collaborative action research framework on the development of curricula in eco-art education. It was an excellent means of instigating lesson development in this area, as so many lessons and such rich discussion resulted from the five team meetings over the course of the year. As lead researcher, it was rewarding to watch the reaction of the teacher-researchers to one another as they shared their stories; there was excitement and enthusiasm, positive responses and congratulations, and even some 'aha' moments when one realized that another's approach could be used to introduce a concept or address an issue in her own classroom. This cross-pollination helped to create a sense of cohesion and co-operation in the group that spurred a more bountiful crop of eco-art lessons than might have been grown individually.

Evidence to support this comes from the teacher-researchers themselves. Dorie declared that "the whole experience was SO positive, affirming, and stimulating", and that it "kept me enthused, and excited about the focus of the lessons; forced me to be well prepared and really focused on the objectives". This sat in contrast to her response in the

first meeting in which she was hesitant about what she had to bring to the project. The positive feedback she received from the group over the year, along with that of her students and colleagues at school, helped her to realize that she brought an enormous amount of experience and expertise to the project despite her earlier misgivings.

Anne felt a similar effect, attributing a rise in her confidence level about eco-art to the team's collegial atmosphere:

You know why I love this group so much, though, is that I see work that all of us have done and things start, ideas start to come together...just in terms of confidence, too, I think that's certainly where this group has been very helpful because, again, it's just this whole idea and you expressed before, too, Karen, that you have certain ideas that you want to put them out there. And to have the ideas validated in a group like this with like-minded people who just give the further support and encouragement to follow through on different things like that. So that adds to the confidence level.

Although Astrid was supportive of the action research framework at the end of the inquiry, she felt disappointed in her own role:

I have worked on action research projects before and find them extremely useful... This is one reason why I was so excited about participating in this project. Yet, I think I overextended myself this year and really didn't give as much as I should have/could have to the project or the other participants. I did receive a lot – in the form of ideas and support from the group. Yet, I didn't accomplish what I would have liked to.

She felt that she had found a sense of collegiality amongst the team members, and only regretted not having contributed more herself.

Karen was particularly articulate about the effects of the collaborative action research process in her journal at year's end. While the following was written as a journal entry, she read it to the team at the final meeting so everyone could better appreciate the impact of the year's collaboration on her:

Action research has been incredible on many levels. It has inspired, empowered and validated who I am, how I teach, and even how I choose to raise my children.

It inspired me to push forward with what was in my nature, to reflect more on my practice, my values and how I was already integrating the environment into most areas of my teaching and personal life.

Being a part of this team empowered me to take more leadership at work, to reach out more to like-minded families at school to help educate others about the importance of integrating ecological literacy in all that we do. This enlarged the circle and in turn empowered other children and parents to have a stronger voice and sense of ownership...

As a mother and as a person, my involvement in this action research project has validated my commitment to the environment, to not always choose the beaten path. It has validated my choices in how I live my life, where I draw my inspiration, and what I model for my children, both at work and at home. It has inspired me to take more action.

The team listened quietly to Karen's eloquent summary of the effects of the study's framework, patiently waiting as Karen wiped away tears and caught her breath as she read from her journal. Others on the team shared her tears, moved by her honesty of emotion and resonance with their own experience. From her actions and words it was obvious that Karen had gotten a deep sense of affirmation from her involvement about her professional beliefs as an educator, and also about her personal values as an environmentalist. While not all on the team may have been moved in these same ways by the collaborative action research experience, we shared the feeling that we had participated in a unique project with a truly special group of colleagues, and were all sorry to see the process come to an end.

Reflecting on the Harvest

My own involvement in this dissertation has been an enriching experience, as it has been for other members on the team, leading me through a process of growing and learning that has been absorbing, productive and highly rewarding. Looking back on the questions that seeded the thesis from the start, the growth that occurred as we explored

and constructed answers to these questions was substantial, both individually and collectively. The growing season of nine months of curriculum development has included phases of action and reflection, produced a bountiful harvest of eco-art curricula, and ultimately led to a number of insights into curriculum development in eco-art education and the process of collaborative action research.

Insights into Curriculum Development in Eco-art Education

The dissertation's key question about eco-art education, what does it look like in elementary classrooms, has been well explored, resulting in the implementation of fifty-four eco-art lessons in four schools. These lessons have shown that there are multiple ways to answer the question through the design and delivery of eco-art education on its own or integrated with other subjects. This inherent flexibility has meant that there was not one 'best practice' in eco-art education as a result of this dissertation, but in fact many, and that each educator had room to grow a practice that best suited the knowledge and experience they brought to learning about art and the environment from the start.

As in any gardening season, however, insights have been gained into the nature of growing eco-art education that will be useful to others beginning their own process of curriculum development in this field. The first insight came from the team's ongoing discussion about their definitions of eco-art education and the effects of those definitions on lesson design and implementation. It became clear over time that each teacher-researcher had a unique definition that was influenced by their previous experiences and current beliefs about art, the environment, and the nature of teaching and learning. While in some disciplines this subjectivity might be a disadvantage, in this dissertation it ensured a high degree of involvement from each teacher, allowing each to find her own

level of comfort from which to initiate learning for herself and her students. It gave each teacher-researcher the freedom to root her curriculum in her own sense of place (both theoretically and physically), and take advantage of the materials, techniques, imagery, places and pedagogical strategies that she felt most at home with.

Giving the teacher-researchers this latitude resulted in a wide variety of eco-art lessons, some linked more closely to traditional art lessons, and others more innovative in their approach or more closely aligned with environmental learning. The common thread that ran between all was their framing of specific lessons as eco-art, indicating each teacher's intention to link them with learning about the environment. This intention was important as it altered the content or presentation of the lesson to move beyond the confines of traditional approaches to art education to link learning about art with environmentalism, an approach with a much broader impact. It also signaled that the teacher-researchers had put a set of values into play, ones that centred on respect, "respect for self, respect for others, respect for community, respect for the world", as Karen so eloquently put it. In this it supported Rosenthal's (2003) theory about the foundational values that underlie eco-art practice by professional and student artists. As the results from this thesis demonstrated, eco-art projects in elementary schools were defined less by what materials or techniques were utilized, and more by the values, ideas or meanings that they communicated.

This line of thinking led to a second insight. Although the choice of materials and techniques alone did not define a lesson as eco-art, the thesis showed that it was important to aim for alignment or coherence between the physical aspects of an art lesson (the materials and technique) and its conceptual basis (the environmental theme, idea or

message). In these elementary settings this was relatively easy to do, as the teachers understood the need for using non-toxic art materials with children, and their school board has been careful to vet their supply lists to limit access to hazardous materials.³⁵ The team discovered, however, that environmental messages could be better modeled and reinforced with children by providing access to biodegradable, nature-based, re-used or recyclable materials that leave little (if any) residue to landfill. Children were often quick to point out incongruities between material and message, and therefore ensuring a sustainable approach to art-making proved to be important by modeling the 3Rs and incorporating them into eco-art lessons in demonstrable ways.

In the teacher-researchers' experimentation with natural materials, they discovered that these offered significant advantages beyond their lack of waste. Natural materials were often lower in cost than traditional art supplies (often being found for no cost at all), therefore freeing up their classroom budgets for other things. They were able to use them to make tangible connections to the natural world, thereby introducing concepts about eco-systems and ecology that tied lessons to environmental learning. In some cases, when the students found the materials on site (such as in Anne's school garden), these materials also provided a memorable link to the students' sense of place, and so brought with them semantic properties a more generic art material might not. The insight drawn from this was that the use of natural materials was a meaningful addition to eco-art lessons, and should be considered as a beneficial component of eco-art

³⁵ What hasn't been considered by most teachers or school boards is the impact of materials on the environment beyond their toxicity levels to children. Many materials commonly used by children in schools, including markers, tempera paints, tape and modeling compounds (like plastecine and Model Magic) create a significant amount of waste that ultimately ends up in landfill. Karen's primary students understood this, and were quick to point out the materials that would create waste. What needs to be considered in a more sustainable approach to art education is the full life cycle of these products, from the pollution created during their production to that created through their disposal.

programming. This makes perfect sense, as this is common practice for adult eco-artists. But the use of natural materials has fallen out of favour in most schools in recent years, relegated to the status of 'craft' and mostly left out of school art programs. Only a few articles (Keifer-Boyd, 2002; Inwood, 2006) have discussed the use or advantages of natural materials in art-making in schools. The results of this dissertation provide support for emphasizing this concept.

As all of the teacher-researchers felt it was important to relate learning in eco-art to the natural world, they found other ways of doing this beyond their choice of materials. One way was to have children observe and image natural features of their local community; trees, plants, flowers and leaves all proved to be popular as the basis for drawing and painting activities. The team believed this developed their students' powers of observation and heightened their awareness of nature, both central to environmental learning. In some cases this was done outside to maximize their experience; in others, when the weather was inclement or timing did not allow for it, natural features were brought into the classroom instead to inspire activities. Some case studies have promoted the value of this approach in the past (Birt, Krug & Sheridan, 1997; Garoian, 1997; Anderson, 2000; Holmes, 2002), and therefore the team was well-supported in using this strategy as a means of connecting to nature and eco-art.

When the teacher-researchers took their classes outside as part of their eco-art lessons, little did they know that they were also supporting current theories of place-based education (Sanger, 1997; Smith, 2002; Sobel, 2004; Weston, 2004). The insight into this approach to learning was that eco-art lessons for elementary students can and should be taken outside the four walls of the classroom. The effects seen in this thesis

demonstrate its worth: it exposed students without much experience in nature to learning inherent to being outside, and allowed other students with an affinity for the natural world to be in their element for a change. It provided students with first hand experience with plants, insects, wildlife, and the elements, making learning more memorable than that found in a textbook, and possibly igniting their sense of wonder (Carson, 1965) for the natural world. This dissertation demonstrated that engaging elementary students in place-based learning as part of an eco-art program is not only possible, but that it is most likely advantageous; in this it has provided some support for those (myself included) who have called for a place-based approach to art education (Blandy & Hofmann, 1993; Graham, 2007; Gradle, 2007; Inwood, 2008).

In the team's use of place-based learning as a component of eco-art education, built aspects of the students' communities received less emphasis than natural environments. Although the mural project incorporated built and natural aspects of the local neighbourhood through its imagery, and the 'Drum Collages' compared the features of urban and rural communities, all of the other eco-art lessons placed a greater emphasis on nature as the site of exploration and remediation. This demonstrated a certain slant to the teacher-researchers' definition of environment, one that privileged the natural over the urban. The benefits of more closely examining urban environments have been described in the past (Simpson, 1995; Thurber, 1997; Asher, 2000; Holloway & Krensky, 2001), but did not appear frequently as part of the eco-art lessons in this study, despite the need for the same types of environmental activities (the 3Rs, stewardship, conservation, and preservation) to take place in urban environments as in natural ones. Therefore another insight I have gained from this inquiry is that a better balance must be found

focusing on natural and built features of the environment in a place-based approach to eco-art education. If this balance is not found, we risk relegating eco-art education and environmental learning to only those school communities with easy access to nature, denying its benefits to students in densely populated urban environments.

Even with this emphasis on the natural world, the team did demonstrate clearly that eco-art education could be used effectively in elementary settings to support learning about the environment. The principle of sense of place was emphasized most often through the choice of natural materials, imagery and messages, but the concepts of ecosystems thinking and human impacts were also connected to in varying degrees, demonstrating clear connections to the pillars of the TDSB's definition of environmental education (Department of Environmental Education, 2001). This proved to be an important insight in itself. Few mentions have been made in the literature to support research into eco-art learning at the elementary level. This team amply demonstrated that not only could it be done, but they also created an extensive database of lessons that is unequalled in the literature. In this, the inquiry has provided a significant addition to art education and environmental education generally, and eco-art education more specifically. It has also provided a strong basis from which to argue for the value of cross-curricular approaches to environmental learning, particularly those that are arts-based, in the field of environmental education. This may prove to have special resonance in Ontario, as the Ministry of Education announced a year ago the intention to make a cross-curricular approach to environmental education a mandatory part of the provincial curriculum.

The team's work has also added to the discussion about age-appropriate environmental learning (Sobel, 2005) by exemplifying non-threatening ways to involve elementary children in art-based environmental activism. Some of the art lessons contained a stewardship or communications component that not only raised awareness of a site or issue, but also positioned artworks as creative solutions to environmental problems. Using the strategies of exploration, collaboration and experiential learning, these solutions demonstrated that children can be involved in identifying environmental challenges in their local communities as well as creating innovative solutions for them; this does not have to be solely the territory of teenagers or adults. In this, it offers elementary students and teachers a way to address the environmental ills of our time and a means to take age-appropriate action. This provides a way to bring a level of integrity to environmental education (as Rosenthal (2007) defines it "closing the gap between what we value and how we act"(p.1)). Eco-art education may help lay the roots for moving students from attuned environmental attitudes to more sustainable environmental behaviours (although more study of student behaviour would be needed to fully support this claim).

This dissertation did demonstrate that inspiration for developing eco-art education lessons came from a wide variety of sources, an insight not made previously in the literature on eco-art education. Other case studies have used science concepts or strategies as the instigation (Birt, Krug & Sheridan, 1997; Anderson, 2000; Holmes, 2002) and only one referred to the work of a professional artist (Keifer- Boyd, 2002). In this study the range of inspiration proved more varied. Some lessons used art materials or techniques as the starting point, either due to the level of comfort they provided (as

they had been used by the teacher before) or as a way to try something new. In other lessons, it was a desire to connect to an environmental concept or solve an environmental problem that was the instigator. In a few cases another subject, such as language arts or social studies, inspired the lesson.

Often it was the work of an artist that initiated the planning, shared with students through photographs, film or in person. Sometimes this encouraged students to try to emulate the artist's technique, and more importantly to explore his/her intentions for the work. The insight this yielded for me was that artists didn't have to be environmentally focused for this to prove effective; sometimes the act of framing the artist's work within a discussion about eco-art was sufficient to link their art to environmental learning. However with art that did have an environmental basis, like that of Goldsworthy, it proved to be a highly effective means of engaging students in dialogue as well as art-making. While many scholars (Gablik, 1991; Lankford, 1997; Hollis, 1997; Collins, 2007) have referenced the work of eco-artists that could potentially play this role in classrooms, this is the first thesis or study I know of that has documented this put into action routinely with elementary students.

The focus on Goldsworthy's work in this inquiry has left the door open for future research into identifying other eco-artwork that generates the same enthusiastic response from elementary students and their teachers. It also begs the question about the best means of sharing such information with teachers, as this study did not produce adequate data to address this issue. Although the team identified books, websites and storybooks as resources they most often used for lesson development, the use of these wasn't clearly evidenced. They appeared to draw more frequently from their colleagues on the team,

demonstrating that another form of inspiration came from the framework of collaborative action research. This nurtured a sense of collaboration and co-learning from the start, and encouraged the team to share their ideas, provide positive feedback to each other, and celebrate their successes in a supportive atmosphere. I have no doubt that the team developed a richer body of lessons than they would have done individually, and that collaborative action research played a role in encouraging this development.

This thesis did provide sufficient evidence to support insights into the pedagogical strategies best suited to eco-art education. In many ways, the strategies used by the team aligned with those recommended in the eco-art education literature (Gablik, 1995; Neperud, 1995b; Birt, Krug & Sheridan, 1997; Garoian, 1998), resulting in the frequent use of interdisciplinarity, dialogue, and experiential learning, all built on the values of empathy, sustainability and respect for the environment. In their focus on place and community in a number of lessons, the team demonstrated some aspects of a place-based approach, drawing from the literature on place-based education in art education (Blandy & Hoffman, 1993; London, 1994; Neperud, 1995b; Graham, 2007) and in environmental education (Sanger, 1997; Smith, 2002; Sobel, 2004). They even put into practice some of the strategies informed by an eco-feminist approach (Hicks & King, 1996) as seen in their choice of foundational, confrontational and restorational experiences.³⁶ Despite these alignments, these pedagogies were not developed from the team's review of the literature (as they didn't access it), but were ones already in place as a normal part of their teaching practice. This demonstrated to me that it might not be difficult to convince other teachers to implement eco-art education in their classrooms, as teachers in Ontario schools commonly practice these pedagogical strategies. This should be the case for

³⁶ Refer to chapter 2, page 38 for a description of these experiences.

outdoor and environmental educators as well, as these same strategies are also utilized frequently in these areas.

One pedagogical strategy that deserves to be highlighted, due to the frequency of its use, was cross-curricular learning. This strategy was used repeatedly, from linking eco-art to language arts and social studies learning, to integrating it with science, math, music, health and outdoor education. This supports and models the environmental education principle of systems thinking (Department of Environmental Education, 2001; Rosenthal, 2003). While many teachers in Ontario still take a disciplinary approach to learning by presenting subjects as discrete entities, this dissertation demonstrates the value of curricular integration, in that the cross-curricular lessons often appeared to be the most meaningful ones for the teachers and their students. Although more research is needed to ascertain the nature of students' experiences in eco-art education, my field observations and the team's comments point to integrated learning as a positive inclusion from a teacher's perspective in a pedagogy for eco-art education.

Considering the range of lessons that emerged from the study, however, a few other insights can be drawn about eco-art pedagogy. The lessons that seemed to hold the most resonance for the teacher-researchers and their students were ones that used these pedagogical strategies to empower students to effect positive environmental change, moving beyond observation and exploration into activism. This required a conceptual alignment among the strategies, materials, techniques, messages and environmental principles of the lesson, an approach that sadly isn't often part of regular teaching practice. Careful attention to this alignment for others developing and teaching eco-art

lessons in future would be well advised, as it is one route to ensuring the resonance and power of eco-art lessons.

As not all of the lessons in this thesis carried this resonance, it was interesting to note that in any of the teacher-researchers' eco-art curricula, there appeared to be a range of breadth and depth in linking lessons to environmental thinking and action, a scale of different shades of green, as Selby (2000) so aptly put it. With no existing scale of how to 'green' an art lesson to guide them, each teacher-researcher had to create her own scale, which depended on her knowledge about environmental issues and eco-friendliness of specific art materials. She then set this knowledge in relation to the strength of the environmental message that she wanted to communicate. This resulted in eco-art lessons that were only lightly 'greened', ones that most closely related to Collins' (2007) *lyrical/creative expression* level of practice. Perhaps this should have been expected at the elementary level, but it is still somewhat problematic in that they could be accused of reinforcing a stance of *dominion* over the environment (Heimlich, 1992). Lessons that were further along the scale, in the 'mid-green' range, better exemplified Collins' third level of practice, that of *creative/transformational action*, and related more closely to Heimlich's stance of *stewardship*. I'm not convinced that any of the eco-art lessons in this thesis ever advanced to a deep shade of green as defined by these writers.³⁷ This begs an interesting question: is the deep shade of green achieved by professional eco-artists even possible at the elementary level, given students' intellectual and aesthetic capabilities? Or does an age-appropriate green scale for eco-art education need to be

³⁷ In Collins' (2007) case, this deepest level was the integration of all three levels of practice: *lyrical/creative expression, critical engagement, and creative/transformational action*. For Heimlich (1992), this was embodied in the *union* of humans being seen as a part of nature, rather than separate from it.

devised for the elementary level? More study of this question is needed, as is an investigation into the usefulness of a set of guidelines for eco-art that would rate lessons and/or programs for their level of sustainability in terms of their use of materials and techniques, energy consumption, waste reduction, and strength of environmental learning. This could prove to be an intriguing way to encourage teachers to go a shade (or more) greener in their eco-art lessons or in their art lessons generally in future.

Insights into Collaborative Action Research

Although the key questions of this dissertation focused on curriculum development in eco-art education, a secondary set of data was also generated concerning the collaborative action research framework. The analysis and interpretation of this data has led to some insights into the team's experience of using this framework to develop eco-art education for their classrooms.

Overall the framework provided a strong basis from which the team worked; it gave us a general method for proceeding while simultaneously offering a large degree of flexibility. The team responded well to its main principles; they were excited about the collaborative aspects of the study from the start, and seemed to quickly grasp the concept of the action research spiral (Kemmis & McTaggart, 2003). Its focus on collaboration, observation, exploration and integration aligned well with many of the features of eco-art education, leading to a high degree of compatibility and productivity.

Some of the insights I drew from the inquiry centred on the mechanics of the process, resulting in things I would do differently when I use this framework again. I would choose not to use some of the more formal means of data collection (such as the written questionnaire) at the outset of the study, as it sent a mixed message to the team

members. Although I stressed their collaboration and participation as teacher-researchers verbally and in their research agreements from the start, the questionnaire positioned them more as research subjects.³⁸ I struggled with this tension throughout the thesis; while I aimed for a fully equitable set of responsibilities where we shared leadership and authority, I discovered that equity can manifest itself in different ways, and that we did not have to share the same roles or duties for this to be reached. It became apparent in the first few meetings that the teacher-researchers wanted me to act as lead researcher by organizing the structure, facilitating meetings, and transcribing meeting notes, as they had little interest in these duties. I noted my own struggle in assuming the role in my research journal after the first team meeting:

I did find myself in a moderator's role, asking questions, facilitating discussion, and explaining concepts that while I may have been a bit hesitant about, didn't seem to faze the team – they seemed to expect it. I think it would be very difficult to function without a moderator at all – some direction seemed needed to keep the team on track and not veer off into side discussions.

They saw their roles differently from mine, and yet equally valuable (as they indeed were). In this I learned that collaborative action research can mean that team members bring their own strengths and role preferences to a project, rather than sharing the exact same duties and responsibilities. Although our roles proved to be different, they were complementary and over time proved to be equal in authority, resulting in a collegial, cooperative atmosphere.

I also gained insight into the value of forming a team of colleagues who shared similar questions from the start. While these teachers were certainly interested in

³⁸ While this questionnaire was intended to collect some baseline data for my own reference before the meetings commenced, the same type of information arose verbally as the teacher-researchers described themselves in the first team meeting, and therefore it was mostly redundant.

exploring the key questions of the thesis, they were not necessarily their most pressing questions, nor the ones that they might have identified as their own. In future studies I would spend more time identifying the questions of the team members either prior to or during the first meeting of the team, rather than clarifying the ones already chosen. This clearly was one of the challenges Herr and Anderson (2005) had warned about in choosing a collaborative framework for an individual dissertation. Establishing their questions may have better aided the team's involvement in the formal stages of data analysis and interpretation; as it was, they participated in analysis as a part of the action research spiral, but showed little interest in being involved in these stages once the year of data collection and lesson development was completed.

Another insight I am taking away from this dissertation about collaborative action research is that the action research spiral of *plan-act-observe-reflect*, as originally conceived by Lewin (1948) or more recently by Kemmis and McTaggart (2003), did not prove to be as neat and predictable as these scholars might like us to believe. In a team setting where members were at varying stages of lesson design and implementation when the meetings occurred, sometimes one member's mid-stream observations would impact on another's planning, without the first having gone through a process of reflection. Often the reflection phase would occur in the meetings themselves, as they described the lessons to one another. For these experienced teachers, the stages of the cycle were not always distinct, but tended to blur one into another. I discovered after the fact that Oja and Smulyan (1989) were of a like mind, noting that the collaborative action research process is not always neat and sequential; as they wrote "It may frequently cycle back into earlier steps or work simultaneously within several" (p. 93). This was certainly our

team's experience, and therefore lends credence to their work. Yet we did not find this somewhat messier version of collaborative action research any less rewarding or productive; it still seemed to provide what team members needed when they most needed it.

Insights into Arts-Informed Research

In some ways, writing about the insights gained into arts-informed research runs contrary to the very nature of the framework itself, which promotes the value of more creative approaches to qualitative forms of inquiry and communication of its data. I had felt strongly about taking an arts-informed approach from the outset; it seemed to be the best way to demonstrate my beliefs about the importance of art-making not only as a means of personal expression, but also as a legitimate and valuable means of inquiry. Therefore my most cogent insights into this framework are found in the integration of two series of my own artworks into this dissertation. The first is a series of narrative vignettes on my own praxis in guerilla art gardening, describing my research into eco-art education in elementary settings that paralleled that of the teacher-researchers; these stories are layered on top of my own photographs of growth in nature and art-making, visually manifesting how the two are intertwined in this thesis. The second series of artworks was found in the four portraits of the teacher-researchers presented as sculptural books, found in Chapter Four. These artworks are the most articulate case I can make about the value of including an arts-informed framework into this dissertation; if readers see them as a welcome addition to the more traditional text of this thesis, then I believe the case will have been made for the merit of this approach.

Certainly the processes involved in their creation have proven immensely worthwhile, even if at times I felt I was engaging in a ‘Ginger Rogers’ approach to research.³⁹ The integration of an arts-informed framework proved challenging on a number of levels; it is still seen as an unconventional form of qualitative inquiry, and not widely known in educational research circles. Despite a growing body of literature in the field, I had a limited number of examples from which to draw inspiration. And I often felt tension between the artworks and the more traditional components of the thesis and how the former might fit into the strict requirements for dissertations. I’m not convinced I have resolved these tensions, but I feel I have done the best I could under the circumstances.

Yet these challenges were far outweighed by the benefits of using an arts-informed framework in this dissertation. As an artist, it provided the means for me to process the data and speak to it in a language that comes naturally. Writing is a slow, laborious process for me, as it is for many writers; in contrast, creating the artworks provided a much-needed respite where my mind, hands and heart could quickly achieve an easy state of flow (Csikszentmihályi, 1990). Art-making gave me an alternative way to analyze and interpret the data, both broadening and deepening my experience of it beyond an intellectual understanding to include visual, spatial and embodied forms of processing. And as I begin to share the results of this dissertation with others, the artworks will provide an alternative means of sharing the story of this thesis study that

³⁹ Ginger Rogers was best known as the dance partner of Fred Astaire; she matched his finesse, speed and agility in all of the dance steps he did, but also did them backwards and in high heels. At times integrating an arts-informed research framework into this dissertation has felt like this, as I was fulfilling all of the requirements of a more traditional approach to qualitative research while also adding on layers of difficulty and complexity with the inclusion of the inquiry-based artworks. However, if the end result in this thesis proves similar in any way to the unity of an Astaire-Rogers dance routine, then the hard work will not have been wasted.

honours and reflects the art-based learning that the teacher-researchers and their students also experienced as part of it. I hope that it will move the data off the page and into the visual, physical and affective realms of readers and/or viewers :

In many ways, the insights I gained from including an arts-informed research framework act as an apt summary for those gained from the dissertation as a whole. The first insight is to follow your instincts, despite the lack of enthusiasm or understanding others may have for your conception of inquiry. Changes to inquiry and research will only come about if researchers advocate for and then experiment with new frameworks; in this I have been fortunate to have had a number of inspirational mentors. The second insight I have gained is to model those research and educational practices that you believe in. I have seen this done not only by others in arts-informed research, but also by the teacher-researchers in this dissertation. And finally, I have gained insight into thinking about the big picture from the outset in my approach to inquiry. Integrating the roles I play as educator, researcher and artist into my conception of inquiry has been an important lesson learned, and will influence how I enter into new growing seasons of research endeavours in future.

CHAPTER 6: PLANNING FOR NEXT SEASON

It has been absolutely invigorating to work with colleagues who have discovered a similar connection to eco-art and have allowed it to find expression in their own personal ways...Pure joy, absolutely pure joy to be a part of this. And it's for me the most valuable professional development I think I've ever had.

(Anne Lakoff, Team Meeting #5)

Looking Back on the Harvest

Looking back over the last three years, this quote, made by one of the teacher-researchers during the final meeting, beautifully captures my own sentiments about this thesis study. It was a deeply gratifying experience, one that allowed me to integrate my roles as researcher, educator, and artist in a large-scale project for the first time in my career. It allowed me to gain invaluable experience in curriculum development in eco-art education through discussion, observation, exploration, and implementation, alongside a group of enthusiastic and dedicated educators who shared my beliefs in the value of integrating art and environmental education. Together we harvested a bountiful collection of lessons, reflections and insights into the content and pedagogy of eco-art education and the framework of collaborative action research, demonstrating the breadth and depth of our learning over the course of this year.

Throughout this experience, this dissertation has acted as a gardening journal of sorts by identifying the growing conditions of the thesis study and describing their effects on its harvest. The first chapter detailed preparations for the thesis by establishing definitions, explaining ground rules and setting the scope for the research. The second laid the groundwork for it by identifying educators, artists and scholars whose work had influenced my approach to eco-art education from the outset. Their work was central to

my decisions about how to frame the study and conceive of its questions in a way that honoured its roots in art education and environmental education. The third chapter furthered this by identifying and explaining the key questions, framework and methods that were selected to ensure a comprehensive set of data on curriculum development in eco-art education. A hybrid of collaborative action research and arts-informed research provided a framework conducive to cultivating answers to these questions and taking action towards the dissertation's goals.

Based on this careful planning and solid groundwork, the harvesting began. Chapter Four provided a textual and visual portrait of each teacher-researcher, summarized her individual collection of eco-art lessons and traced some of the team's common starting points in terms of their backgrounds, expectations, and definitions. The processes of analysis and interpretation came into play in the fifth chapter in order to identify similarities and differences in the teacher-researchers' approaches. These resulted in the identification of patterns found in their inspirations, links to environmental learning, definitions of eco-art education and choice of pedagogical strategies. This led to a greater understanding of the advantages, challenges and barriers of curriculum development in eco-art education, as well as to insights about the nature of this development and the frameworks of collaborative action research and arts-informed research. This sixth chapter concludes by reflecting on the thesis as a whole and contextualizing it in a broader way. In this I aim to establish the significance of this work in terms of its contribution to eco-art education, art education more generally, and environmental education by tracing its implications, assessing its integrity and demonstrating its path to future actions.

Throughout all of these chapters I have woven my own narrative through a series of narrative vignettes, linking my own praxis as educator, artist and researcher to that of guerilla art gardening. This has given me the means to make clear the connections between the research and my own story, as both are inextricably related. Through this I also hope to shed some light on my background and perspectives, as these have no doubt informed the dissertation. The use of a personal voice and layering of imagery were chosen purposefully to offer readers alternate ways into the text, as I appreciate that not all enjoy the structure and lingo of academic discourse. I trust that it has also aided in the creation of my ultimate goal for this work of balance, between the individual and collective, the personal and the academic, and the pragmatic and the aesthetic.

At the same time as striving for balance in the processes and products of the dissertation, I have aimed to make a distinctive contribution to the body of knowledge and discourse in eco-art education. This contribution has led to a better understanding of curriculum development in eco-art education by exploring elementary teachers' experiences with lesson design and delivery. There were three major outcomes of the research: a database of elementary eco-art lessons, evidence that art lessons can support environmental learning, and insights into the curriculum development process and applicability of the research frameworks. In this, the dissertation has made a substantive contribution to art education and art-based approaches to environmental education as few studies in eco-art education as extensive as this one have been conducted previously, and little sustained investigation has been focused on eco-art learning at the elementary level.

While contributing to a growing body of literature in this field, this thesis has also achieved its own aim, which was to explore how teachers design and implement eco-art

lessons for their elementary students. Four elementary teachers in Toronto joined me on a team that investigated this through the frameworks of collaborative action research and arts-informed research, allowing us to work co-operatively to answer the key questions of the study. This group functioned effectively in its meetings by discussing ideas, sharing resources, and providing support in a caring, collegial fashion. Together we demonstrated that the frameworks were appropriate means for initiating and developing eco-art curricula as they aligned well with its foundational value of respect and its main pedagogical strategies of observation, exploration, collaboration and integration. This successful collaboration led to a range of outcomes and insights into the curriculum development process for eco-art education.

Key Questions and their Outcomes

The outcomes of the study were linked clearly to its key questions. The first question, which centred on what eco-art education looks like in elementary classrooms, was fully investigated. The team designed and delivered over fifty eco-art lessons, a resounding number of experiences over the course of nine months. The lessons ranged in complexity and depth, utilized a wide array of materials and techniques, and supported a variety of environmental principles and themes. While a few texts have offered lesson ideas for eco-art education in the past (Ulbricht, 1998; Anderson, 2000; Keifer-Boyd, 2002; Anderson & Milbrandt, 2004), none has generated this number or variety of lessons to catalogue, analyze and ultimately share with others.

This extensive set of lessons has helped to address other key questions of the study and support their related outcomes. For example, how teachers define eco-art education and how this influences their practice of it in the classroom was the focus of

another of these questions. The definitions of eco-art of the teacher-researchers varied, but certainly demonstrated connections to their previous experiences in and knowledge of art and environmental education. These connections turned up in elements of their practice, be it through their choice of materials, imagery, or themes for the lessons, or through their structure or pedagogy. Despite the variations in their definitions, they did exhibit similarities in the inspirations, links to environmental learning, and pedagogical strategies that informed their lessons, suggesting that it was not simply their definitions that influenced their practice, but knowledge and influences gained over the course of the year.

Defining eco-art education through discussion and practice led to a number of outcomes. The group agreed that eco-art education was defined less by the materials and techniques used in the lessons and more by the environmental messages that were communicated, and that an alignment between the medium and the message was important. There was also agreement that learning about eco-art was built on the value of respect for the earth, rather than a specific set of concepts or ideas, so that any art activity that instigated thinking, discussion or action with this in mind was sufficient to define it as eco-art. This resulted in a definition with a large degree of flexibility, making it responsive to the needs, expectations, and knowledge levels of its practitioners; it also ensured the team's deep engagement with eco-art learning over the year.

There were patterns in the data to shed light on the question of what curricular content and structure resonated with elementary teachers and their students in eco-art lessons. Many of the lessons aimed for connections to nature through their materials, images or activity sites, demonstrating the strong value placed on the natural world as a

way into environmental learning. In all of the teachers' programs there was an exploration of place, in the school garden or the surrounding neighbourhood, to frame their discussions about the environment in local terms. To support learning about place and nature, the eco-artwork of Andy Goldsworthy proved popular, inspiring dialogue about his techniques and intentions as well as spurring on the children's creativity. But there was also evidence of a need to connect learning about art, nature and place to other parts of the curriculum, seen in the integration of language arts, social studies and outdoor education in many activities.

In some ways, the structure and pedagogy of eco-art lessons proved similar to more general art lessons, making it comfortable for generalist elementary teachers to tackle without special training. Looking at art was often combined with discussion and art-making, emphasizing both process and product as parts of the learning experience. Some of the lessons were tightly structured with defined beginnings and ends, while others were more open-ended, allowing room for both approaches to be used effectively. At times there was a greater acceptance of ephemerality in the art-making process, placing less emphasis on the traditional 'make and take' approach of art education and more on the use of biodegradable materials and natural processes to play a role in making art. In these same lessons there was also a shift to more collaborative modes of art-making, involving small teams or the class as a whole in creative eco-action. This varied the structures of eco-art lessons beyond those dictated by modernist approaches to art education (which tend to be individualistic and unrelated to context), to include postmodern ones that were dialogic, collaborative and community-oriented, like those recommended by Gablik (1991).

The pedagogical strategies of eco-art learning, examined in response to another key question of the study, also shared similarities with art education through the focus on hands-on learning and links to professional artists' work. Yet there were important differences that it offered as well: a frequent inclusion of cross-curricular integration, use of the outdoors as a location for learning, and team-work as an approach to art-making. Signaling links to environmental learning was also integral to eco-art pedagogy; this was achieved through modeling the 3Rs and other environmentally-friendly practices, placing an emphasis on content (as well as form and technique), and on framing as a means of highlighting environment learning as part of the lesson. A main outcome of investigating the pedagogical strategies of eco-art education was the realization that many of these same strategies have been found in environmental education and outdoor education, and therefore, provide a strong basis from which to argue that eco-art education is a balanced integration of pedagogical approaches to art education and environmental education. While some scholars (Gablik, 1991; Neperud, 1995b; Garoian, 1998; Krug, 2003) have proposed similar strategies as the basis for eco-art education, this is the first multi-case study to support their theories and provide evidence that these strategies can be implemented by elementary teachers without intensive inservice training.

This outcome also applied to the final question of the study, which focused on how teachers weave together art and environmental education to learn about environmental issues and concepts. By drawing pedagogical strategies from both disciplines, the team capably demonstrated that eco-art education could be used to support learning about environmental issues as well as generate innovative and engaging art lessons for their students. By channeling their students' enthusiasm for learning about

art into learning about the environment (and in a few cases vice versa), and then modeling their own engagement with the topic of eco-art, the teacher-researchers created an atmosphere conducive to weaving the two fields together. They also built on the innate curiosity that many elementary students have for the natural world as a common thread between the two disciplines: they achieved this through observations of nature, the incorporation of natural materials or processes, the depiction of natural imagery in their art, and the development of their physical and affective connections to local places. And finally they promoted strategies for reducing their impact on the earth, such as discussing and modeling the 3Rs, re-using and recycling found materials for art-making, planning stewardship activities as a class, and brainstorming approaches to urban revitalization. The outcome of this was found in the coherence between the eco-art lessons and the core principles of environmental education (Department of Environmental Education, 2001) that developed as part of the teams' programs. This coherence was found in all of the eco-art lessons, albeit in varying degrees and intensity, pointing to the need for a rating scale or set of criteria to move eco-art lessons to "a deeper shade of green" (Selby, 2000, 89).

Contribution of the Dissertation

The data gathered in response to the thesis questions and related outcomes generated as part of this dissertation demonstrated that its aims were achieved, and that the team created a broader and deeper understanding about curriculum development in eco-art education through this work. It was the first multi-case, multi-site study in eco-art education, as others have been conducted only on one case or site (Blandy & Cowan,

1997; Keifer-Boyd, 2002; Holmes, 2002). This has been one of the few studies aimed specifically at investigating and reporting on eco-art learning at the elementary school level, as others have been focused on secondary school or college levels (Keifer-Boyd, 2002; Rosenthal, 2003) or focused on alternative learning environments (Barbosa, 1991; Blandy & Cowan, 1997; Neperud, 1997; Clover, 2000; Anderson, 2000). This dissertation differed from these previous case studies in its length, depth, and use of the collaborative action research and arts-informed research frameworks, which proved to be fertile environments in which to grow eco-art education individually and collectively.

The findings of this thesis have also provided evidence to support theorizing done by others in the existing literature on the topic. It has created a body of elementary-level exemplars to support the theoretical suppositions about eco-art education made over the past decade and a half about the role that place-based learning can play (Blandy & Hoffman, 1993; Neperud, 1995b; Graham, 2007; Gradle, 2007), as can collaboration and postmodern approaches (Gablik, 1995; Ulbricht, 1998; Garoian, 1998). The findings have also supported Lankford's (1997) definition of eco-art education as "purposeful creativity" (p. 50) by exemplifying how eco-art projects can function as examples of stewardship. And it demonstrated that Rosenthal's (2003) use of systems thinking as a theoretical basis and teaching strategy could be applied not only to college students, but to elementary learners as well.

This dissertation has also made a contribution to the literature in the field of environmental education. As so few studies or texts have referenced or exemplified the role of art education in environmental learning, this thesis has made a substantial contribution to this discipline. It has responded to the calls to expand the field beyond

the positivist approaches on which it was built (Russell, 1997; Bailey, 1998; Chawla, 1998; Lousley, 1999) and increase the role of the humanities in environmental education (Orr, 1992). It also supports those scholars (Engel, 1991; Hansen-Moller & Taylor, 1991; Clover, 2000) who have called for the inclusion of aesthetic orientations to environmental learning. And while it did not set out to support place-based education and its proponents (Sanger, 1997; Smith, 2002; Sobel, 2004;) the findings have demonstrated that place is a valuable means of connecting elementary teachers (and possibly their students) to learning about the environment, can inspire environmentally-friendly art-making activities, and therefore deserves further investigation and documentation.

Limits of the Contribution

However there are limits to the contribution that this study has made. Environmental educators, versed in quantitative and experimental approaches to research, may question its grounding in qualitative data and analysis. While qualitative methods are starting to gain some acceptance in this field, some might wonder about how notions of validity and generalizability are met to align with their own definitions of rigour. They might have liked to have seen a greater number of case studies included to allow for a larger data set to support patterns found in the data during the analysis stage. Some science-based environmental educators might also find the lack of clear connections to scientific concepts, such biology or ecology, problematic as their field has been so heavily rooted in this approach for so long. The thought of broaching accepted principles of environmental education (Department of Environmental Education, 2001) from an affective or aesthetic angle might prove difficult for them to conceptualize.

Fewer questions may arise about the contribution of this thesis from art education circles. While some art educators may question the basic premise of the dissertation which uses art education as a means of social change, this approach has gained general acceptance in recent years (Albers, 2003). Some may question its focus on environmental issues to the exclusion of other, equally important social concerns, such as poverty, hunger, violence or racism; however, these global concerns are easily connected to environmentalism for more encompassing lessons on equity and social justice. Others may have preferred a more avant-garde approach to environmental learning in the lessons, emulating the work of a broader range of eco-artists such as Newton and Helen Meyer Harrison, Dominique Mazeaud or Betsy Damon. Educators such as Ulbricht (1998) and Adams (1999) may see the connections to nature in the lessons as too predominant, and request a better balance between the built and the natural, with which I would agree.

Questions can be raised about the application of the frameworks of collaborative action research and arts-informed research. Some may argue that the collaborative action research framework was a difficult fit with the individual nature of doctoral research, and that the team should have been involved from the start, especially in framing the questions. In hindsight I would involve a team in this in future, (though in this case it wasn't possible due to the need for university and school board permissions before proceeding). There may be questions about the inclusion of arts-informed components in the dissertation; while I would agree these weren't necessary to support the applicability of its results, I included them to help to engage others in the study who might not choose to access this text. As a visual learner and artist, I believe that their

inclusion provides opportunities to demonstrate the value of arts-informed approaches to research to a wider audience.

Integrity of the Dissertation

This dissertation has been successful in light of the criteria I established for the study at the outset. I had aimed for Herr and Anderson's (2005) five criteria of action research: a sound and appropriate research methodology, the generation of new knowledge, the education of both researcher and participants, results relevant to the local setting, and the achievement of action-oriented outcomes. Of these, the research methodology has been detailed and analyzed for its effectiveness and transparency in Chapters Two and Five. Indications of its sound application were most obviously found in the positive responses of the team members to its use as a framework, and in its alignment with the pedagogical strategies of eco-art education. The use of an arts-informed approach has certainly been useful to me as a researcher, allowing me to interpret the data and share it with others in a variety of ways; its reception by readers and viewers will help to determine its applicability to the overall impact of the thesis study.

The second criteria, the generation of new knowledge, has also been met (as outlined on pages 228-234 in this chapter). A secondary indicator of success in this area will be the sharing of this knowledge with a broad range of audiences and its dissemination to both teachers and students alike. This has already occurred through the learning manifested by the teacher-researchers, by their students, and by me, leading to the achievement of a third criteria, the education of both researcher and participants. The team demonstrated a high degree of learning, as demonstrated by their comments in

Chapter Five. More importantly, we thoroughly enjoyed our learning as the study progressed; feedback from the teacher-researchers suggested that their students did, too.

The flexibility of the teachers' definitions and design of eco-art education aided in the achievement of the fourth criteria, results relevant to the local setting. The results of their research had a high degree of relevance for their students in their use of place-based learning to connect their classes to their local environments; this should have positive effects for these students, possibly over the long term. It has also demonstrated its relevance for the local school board, as some of the teacher-researchers' eco-art lesson ideas have already been shared with other teachers in their board via professional development workshops. Will this ultimately have a positive impact on the local physical environments of these schools? This is difficult to assess, given the complex variables involved, but some implications from the dissertation (the installation of a mural in one schoolyard, the creation of a school garden in another, and the founding of new EcoClubs in two others) certainly suggest that the ripple effects from this thesis may be felt in these communities in the years to come.

Finally, the dissertation has achieved a variety of action-oriented outcomes as an indication of its success. Part of these outcomes were experienced by the team's students, and manifested in their classrooms and schoolyards. The most prominent of these come quickly to mind: Dorie's eco-art exhibit viewed by the entire school, Astrid's community mural in her schoolyard, Anne's stewardship activities for her school garden, and Karen's 'Solution to Pollution' video, shared as a part of her classes' eco-art exhibit at her school's open house. These outcomes were impressive, leaving these teachers and their students alike with positive feelings about their involvement and activism. But

these were just the beginning of the action-oriented outcomes of this research study; a number of outcomes have occurred for all members of the team (myself included) as a result of our participation in this research study, which are detailed in the following implications section.

But perhaps the best indication I have had of the success of this thesis has been from the teacher-researchers' assessment of their involvement. Karen's reflection on her experience (transcribed in Chapter Five on pages 206-207) brought me to tears; having such a positive effect on others was a happy outcome of this thesis. Anne's comments at the final meeting, noted at the start of this chapter and below, similarly moved me:

Because it's touched very close to the things that, the two things that are most important to me, the environment and art. And it's put them together and it just hits me in a place that's, you know, if I'm thinking in terms of something really enduring, long-lasting that I want to do with my students, that's exactly it. So you have created this chance, this opportunity for us, and been the facilitator and the leader, and it's just been exactly the path I wanted to go down at this point.

To me, these comments demonstrate that this research project was highly successful in its ability to motivate and move those of us who participated in it. As Reason and Bradbury (2001) wrote,

A mark of quality in an action research project is that the people will get energized and empowered by being involved, through which they may develop newly useful, reflexive insights as a result of a growing consciousness. They may ideally say 'that was our research and it helped us to see ourselves and our context anew and to act in all sorts of new ways' (p. 448).

This thesis did energize and empower those of us who were involved, leading to new knowledge, in-depth learning, local relevance, and action-oriented outcomes at the time as well as propelling us to more action in future. In this I consider this thesis study to

have already made a significant contribution to those involved in its implementation as teachers and learners.

Implications of the Dissertation

A number of implications have become evident since the end of the data collection phase for the teacher-researchers and the analysis and interpretation phases for me as lead researcher; watching these manifest has been a benefit of the dissertation process. As the effects of this thesis, these implications can be identified in terms of teaching and learning in eco-art education, in relation to the teacher-researchers, and on a personal level. These can also be framed in terms of the questions that have arisen from the thesis, which will drive a range of future actions as a consequence of this work.

Implications for Teaching and Learning in Eco-Art Education

Certainly this thesis has a number of implications for teaching and learning in eco-art education. It has demonstrated that eco-art education can support learning in and about art education and environmental education in elementary classrooms. In this, eco-art education should be expanded into more elementary settings in future, helping teachers to implement art-based and environmental learning together. As the first multi-case study to show this, this thesis has demonstrated that eco-art learning at the elementary level is not only possible but also a valuable undertaking from teachers' perspectives. It has drawn a number of insights into this practice, ranging from its conceptual basis to its pedagogical practices to considerations for the types of materials used.

Its database of fifty eco-art lessons demonstrates that generalist elementary teachers can develop curriculum in this area for their students, and provides a ready set of models for those wishing to introduce eco-art learning to their students. It also exemplifies how to use eco-art learning to make connections to the natural world, to support learning in other areas of the curriculum, and undertake place-based learning and age-appropriate activism. This thesis has also created a rationale for this practice with younger learners by identifying the advantages of eco-art learning in elementary classrooms; this is grounded in the realities of classroom life, however, by also discussing its main challenges. And this dissertation has clearly shown that a collaborative approach to curriculum development in this area is of great benefit to teachers, who derive support and inspiration from working with colleagues with similar goals.

Implications for the Teacher-Researchers

One of the implications of the study was its effects on the teacher-researchers. According to the thesis data, working together and sharing ideas helped to inspire them to take on new initiatives in their own schools the following year. Dorie was hired to teach eco-art at a local outdoor education centre the summer after the last team meeting (and again the following summer), taking what she had learned and applying it in a new context. She continued to develop new eco-art lessons with her new class in the fall, in one case linking eco-art with bookmaking to create a collaborative nature-based alphabet book. Her eco-art exhibit has become an annual community event at her school, expanding to include the work of other classes. And as the only teacher-researcher who had been clear that she wasn't looking for any new leadership opportunities (as she is only a few years from retirement), she has led a number of professional development

workshops for other teachers, has become a member of one of the TDSB's arts councils, and has been involved in the preservice program at the University of Ontario Institute of Technology this last winter.

After a frustrating fall and winter, Astrid finally saw the mural she had facilitated mounted in the school's garden in the spring. It has been seen as part of the neighbourhood's efforts to increase the amount of art in the community. Despite her misgivings that she didn't get as much accomplished as she would have liked, her work with the EcoClub had an unanticipated effect. Karen was so inspired by what Astrid was doing at Kew Beach that she began an EcoClub at her own school a few months before the last research meeting (which has continued to flourish a year later). With this club she has found a group of like-minded students, parents and colleagues who support her environmental initiatives in the school, and an outlet for taking on more leadership. Part of their work this year has manifested itself in a new food garden which sits near the front doors of the school. Nearby also hangs the installation of clay butterflies her class had made the year before, reminding all who walk by of the different forms of life that co-exist in this schoolyard.

Anne was equally inspired by Astrid's club, and also started a 'Green Team' at Runnymede the following year. She led it in conjunction with two colleagues, and had an enthusiastic response from the student body with over thirty students joining as members. They have organized increased efforts of recycling in the school, as well as raised awareness of the benefits of energy conservation and the boomerang lunch policy. Along with the use of the school's naturalized garden, the team was instrumental in helping Runnymede achieve its Eco-schools silver level certification this spring. This

was a proud moment for Anne, as she has been the most vocal and consistent supporter of outdoor and environmental education in the school; it was the culmination of over a decade of lobbying, teaching, organizing and plain hard work.

Personal Implications

It was rewarding to see this new growth come from the work of this dissertation; it resulted in a surge of energy and enthusiasm of my own from my involvement with these dedicated (and seemingly tireless) teachers. This energy was directed in part into sharing my excitement about the study's results at conferences; I presented preliminary findings at national level conferences in art education in Canada and the United States the year after the data collection finished, as well as conducted a number of workshops for preservice students and practicing teachers in Toronto. I had an article accepted into a peer-reviewed environmental education journal, my first to reach this particular audience (Inwood, 2008), and was invited by the Ontario Ministry of Education to review the new Arts curriculum documents in light of their environmental education infusion. And like others on the team, I looked to share some of my enthusiasm with my colleagues; I have organized a working group in the teacher education program that I teach in to discuss ways to better introduce environmental education to our student teachers.

Therefore the implications of the study have moved beyond the teacher-researchers and have had a significant impact on me as well. Beyond its tangible results, the inquiry has instilled in me a new sense of confidence that I can plan and lead substantial research projects through to their conclusion. While I certainly didn't know all of the answers to my questions about qualitative research methods at the outset, I feel assured that I know how to find the answers to my questions in future. I know that I have

developed a new set of skills as part of this thesis in data collection, analysis and interpretation, but more importantly in building a research team that can address research questions collaboratively. I have also developed a better understanding of the theoretical bases of qualitative research in general and collaborative action research more specifically (and have learned enough to know that I still have much to learn). Part of this learning has been to more carefully consider and identify my ontological and epistemological influences and the ways in which they influence my approaches to research.

A pleasant, though unexpected, effect of the dissertation has been the time I have had to reflect on my thoughts about creativity and the important role art-making plays in this. I have re-conceived how art-making manifests itself in my professional and personal life, and broadened my understanding of how creativity plays out in my approaches to teaching, learning and research. I have come to better appreciate that making art as part of my approach to research is one of the best means for me to advocate for its importance and presence in the academy as a valuable and unique means of creating new knowledge and understanding. This is linked to the broadening of my definition of research, a definite outcome of this dissertation and my doctoral studies more generally.

A New Set of Questions

Another result of this thesis has been the generation of a whole new set of questions for future investigation; in my mind, this dissertation has raised more questions than it has answered. Some of these questions centre on further exploring how to get less-motivated teachers on board with delivering eco-art education in elementary classrooms.

It intrigued me that three of the four teacher-researchers had been previously involved in the TDSB eco-art summer institutes, and derived enough satisfaction from them that they chose to continue their learning in the area. I'm particularly interested in identifying the content and strategies for best supporting teachers' professional development in eco-art education, and how to expand teachers' repertoires of eco-art teaching exemplars. This study has provided some insights into this, but more research is needed to fully explore the issue.

A second set of questions, of equal importance to the teachers' experiences with eco-art education, is that of students: what is the nature of their experience, and does eco-art learning have a long-lasting impact on their environmental literacy and eco-friendly behaviours? Are these impacts more affective or cognitive? And how are they influenced by the content and pedagogy used by the teacher? Is eco-art gendered in any way – does it appeal more to boys than to girls? And is eco-art best presented as part of a cross-curricular approach to environmental education, rather than as a stand-alone endeavour? These are complex questions that will require multiple studies to explore, but are necessary to address the current gap in the literature in this area.

Another set of questions stem from Astrid's desire to include all of the arts in the definition of eco-arts education. I share her belief that all of the arts can and should play a role in increasing children's environmental literacy. As with visual artists, many professional musicians, dancers and actors and playwrights have been exploring environmental themes in their works in recent years, many of which are created for younger audiences. But what appears to be lacking is the same level of discussion in the fields of music, dance and drama education as there is in art education around eco-art

learning. The questions that arise from moving towards a model of eco-arts education are numerous: what does each of the arts bring individually and collectively to learning about the environment? How can their benefits best be shared in elementary classrooms? How do the arts induce similar and/or different types of learning than other subjects in relation to environmental education? What types of support, inservice or resources help teachers to present this type of learning to their students? And what do students get from eco-arts learning experiences? There is much work to do in this emerging area of study.

The frameworks of collaborative action research and arts-informed research present their own set of questions for future inquiries. I anticipate using both approaches again, and therefore would like to deepen my knowledge of their theoretical roots as well as experiment with their variations. This will include further investigating the models of co-operative inquiry (Heron & Reason, 2001) and appreciative inquiry (Ludema, Cooperrider & Barrett, 2001) to better understand their fit with research into eco-art education. It will also entail exploring the advantages of the a/r/t/ography model of arts-informed research, as discussed by Irwin and de Cosson (2004). As Irwin writes, “A/r/t/ography is a living practice of art, research and teaching” that encourages educators/artists to holistically merge these aspects of their professional and personal lives so that “they are living their work, representing their understandings, and performing their pedagogical positions as they integrate knowing, doing, and making through aesthetic experiences that convey meaning rather than facts” (p. 34). In some ways I have attempted to achieve this holism with this dissertation, and therefore a/r/t/ography may offer a theoretical base for my approach. Many questions still remain

in my mind about it, centring on its theoretical and methodological implications that may be resolved with more study and experimentation.

And finally, I conclude this dissertation with questions arising from my immersion in the concepts and concerns of environmental education as a part of this research. While I am confident that eco-art education has a role to play in this field, I wonder how it will be received by others more steeped in the traditions and pedagogies of science-based approaches. Will it be accepted as an innovative and valuable addition to growing environmental literacy or relegated to its edges? I have fewer concerns about its acceptance into place-based education, however no fewer questions: what is needed to convince elementary educators of the advantages of applying a place-based approach in their classrooms, and that art education should play a central role in this? More research needs to be conducted into the role of place-based pedagogy in relation to all aspects of the Ontario curriculum to identify its benefits and drawbacks, as well as its fit with the existing culture of teaching and learning in local schools.

Planning for the Next Growing Season

Certainly these questions offer a host of possible directions to explore in eco-art education in future. I have no doubt that this field will continue to grow quickly over the next decade. At the last national art education conference in the United States, there were approximately nine sessions devoted to the topic; five years earlier I might have found one. At recent environmental education conferences in Ontario and the States there were no sessions on the topic, so in this area there is lots of room for growth. Given the increasing amount of attention paid in the media to environmental problems and their

sustainable solutions, it is highly likely that eco-art will rise in prominence as its innovative approaches to environmental restoration and sustainability become more widespread; this should naturally lead to its inclusion in art programs at the elementary and secondary levels.

Promoting Ecological Literacy and Eco-art Education

I have already started to conceive of my role in this and once again my gardening metaphor appears: like most avid gardeners, the seed catalogues are ordered and I'm planning for next season before the end of the current one. As a result of this dissertation, I will be seeding new fields, be they in academia, teaching circles, or directly with students themselves. Within the walls of the academy I am working on improving the ecological literacy of my colleagues and preservice students by infusing environmental learning into my courses, team meetings and professional development sessions. Part of this is raising awareness of the need for environmental education in all aspects of the curriculum, while another part is networking with others with similar goals. Writing journal articles and presenting at conferences on the role and importance of eco-art education in environmental learning will help to spread this influence beyond my own institution and disseminate the results of this thesis more broadly, both in art education and environmental education circles. In future I would like to be involved in editing an anthology about eco-art education to bring together some of the best work done to date and inspire other scholars and educators to add to the field.

Creating Resources for Eco-Art Education

I also plan on continuing my involvement in planting new seeds with practicing educators. Sharing information and resources with teachers of all levels through workshops or summer institutes will continue to stimulate dialogue and fresh ideas, which inspires me as I see this play out in their classrooms. Creating resources aimed directly at teachers in the form of teaching guides or a website may help with this by sharing eco-art education in an accessible way beyond the community in which I practice. One part of this would be aimed at helping to ‘green’ teachers’ practice of art education in their classrooms by providing a set of criteria for more sustainable approaches to learning about art generally and environmental art more specifically. My intention is to use the groundwork of Ontario’s EcoSchools program to create a checklist of criteria that would ask art teachers to consider not only the content of their lessons, but also their working methods and context of learning. If tied to a rating system, art teachers could score their own practice and work to improve it over time; tracking this on the site would provide an intriguing set of data to gauge interest in eco-art education, as well as offer a means for sharing resources and publicizing professional development opportunities related to eco-art education.

Teaching and Learning with Elementary Students and Teachers

Working with students of all ages will be a more direct means of sowing seeds about eco-art education. I plan on continuing to conduct artist-in-education workshops for students next season on a variety of eco-art education topics and themes. These are important for many reasons; they allow me to work with students directly, seeing how they respond to inspirations, ideas and activities in eco-art learning. They also provide

opportunities to learn alongside classroom teachers, sharing expertise and building support at the ground level for these initiatives. And these projects push me to flex my creative muscles, forcing me outside the bounds of my usual approaches to play with new concepts and methods. I hope to work in more open-ended ways with classes to deepen the shade of green of these workshops, perhaps addressing issues of stewardship and conservation in local communities, and ultimately helping to empower students to develop their skills in art and activism simultaneously.

Continuing Creative Explorations in Eco-Art

The last part of my plan for future plantings involves making a dedicated effort to continue my own creative explorations in environmental art. Doctoral study has limited the time I have for art-making, though it has sprouted many ideas for future projects, which I am eager to realize. I have plans for collaborative projects in addition to individual initiatives, as both provide me with opportunities to express ideas, build community and devise creative solutions to environmental challenges. These will become an integral part of my research into eco-art education, leading me from an arts-informed framework to an arts-based one, expanding my repertoire and skills in art-making and research simultaneously.

Conclusion

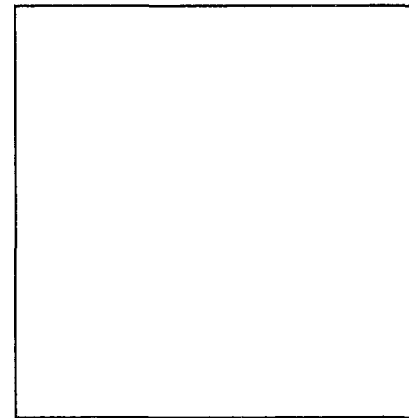
As so little comprehensive curricular development has been done in the field of eco-art education, this dissertation has provided a unique opportunity to learn about the content and structure of eco-art education and the ways in which teachers frame this learning for their classes. It has proven to be invaluable in demonstrating what eco-art education can look like in elementary school settings, and in identifying the benefits and challenges faced by teachers who choose to implement this approach in their classrooms.

The knowledge generated in this study is already proving beneficial as I continue my work in pre-service and inservice education in art education and environmental education, as it has provided a solid foundation from which to develop and promote curricula appropriate for eco-art education in elementary classrooms. In this it will contribute to the ongoing development of the knowledge, theory and practice of eco-art education.

I also plan to use the results of this dissertation to garner interest in the eco-art movement and its achievements amongst educators in a variety of contexts. On one hand, I will be striving to further the greening of the field of art education, to help grow a more sustainable praxis within this discipline. This entails a philosophical shift, one that re-connects art-making and art education to the issues and concerns of the communities in which they take place, but also a practical shift, one that reduces the waste and toxicity on which many art programs are built. On the other hand, I will be aiming to broaden the boundaries of environmental education that have been rooted so heavily in science education in the past. Adding creative voices to this field may encourage a more interdisciplinary approach to environmental education, broadening and deepening its

power with teachers and learners in school and community settings and fostering ecological literacy in the years to come.

I have benefited greatly from the guerrilla art gardening I have done at Runnymede. I have learned a lot about new art techniques, from weaving grapevine to painting murals, from casting concrete to building scarecrows. I have developed my own cooperative learning skills, better appreciating the joys of working collaboratively on projects of mutual significance. I continue to develop my teaching skills, learning to listen more carefully to children's voices and make them the centre of the learning experience. But most importantly I have deepened my own sense of place, better connecting to the people and places of my own community. Through these experiences I have come to understand that guerilla art gardening is about integrating social activism, learning, growth and aesthetic improvement, all in hopes of better connecting to the world. In this, it has become a rich metaphor for my work as an educator, researcher and artist, and acts as a wonderful catalyst for growing my own questions and answers about the praxis of eco-art education.





REFERENCES

- Adams, E. (1991). Back to basics: aesthetic experiences. *Children's environments quarterly*, 8(2), 19-29.
- Adams, E. (1999). Art and the built environment: A framework for school programs. In J. Guilfoil (Ed.), *Built environment education*, (pp.184-193). Reston, VA: National Art Education Association.
- Albers, P. (1999). Art education and the possibility of social change. *Art Education*, 52(4), 6-11.
- Anderson, H. (1997). Landscape art and the role of the natural environment in built environment education. In J. Guilfoil (Ed.), *Built environment education* (pp.1-9). Reston, VA: National Art Education Association.
- Anderson, H. (2000). A river runs through it: art education and a river environment. *Art Education*, 53(6), 13-18.
- Anderson, T. & Milbrandt, M. (2004). *Art for life: Authentic instruction in art*. New York: McGraw Hill.
- Asher, R. (2000). The Bronx as art: Exploring the urban environment. *Art education*, 53(4), 33-38.
- Bailey, S. & Watson, R. (1998). Establishing basic ecological understanding in younger pupils: a pilot evaluation of a strategy based on drama/role play. *International journal of science education*, 20(2), 139-152.
- Barbosa, A. (1991). Art education and environment. *Journal of multicultural and cross-cultural research in art education*, 9, 59-64.

- Beardsley, J. (1998). *Earthworks and beyond: contemporary art in the landscape*. New York: Abbeville Press.
- Bequette, J. (2007). Traditional arts knowledge, traditional ecological lore: The intersection of art education and environmental education. *Studies in art education*, 48(4), 360-374.
- Berry, T. (1992). Art in the ecozoic era. *Art journal*, 51(2), 46-48.
- Birt, D., Krug, D. & Sheridan, M. (1997). Earthly matters: learning occurs when you can hear the grass singing. *Art Education*, 50(6), 6-13.
- Blandy, D. and Hoffman, E. (1993). Toward an art education of place. *Studies in art education*, 35(1), 22-33.
- Blandy, D. and Cowan, D. (1997). Imagine Yellowstone: Art education and the reinhabitation of place. *Art education*, 50(6), 40-46.
- Blandy, D., Congdon, K. and Krug, D. (1998). Art, ecological restoration, and art education. *Studies in art education*, 39(3), 230-243.
- Bochner, A. & Ellis, C. (2003). An introduction to the arts and narrative research: art as inquiry. *Qualitative inquiry*, 9(4), 506-514.
- Bright, D. (1992). The machine in the garden revisited: American environmentalism and photographic aesthetics. *Art journal*, 51(2), 60-71.
- Capra, F. (1999). Ecoliteracy: The challenge for the next century. Retrieved on July 24, 2006 from the Center for Ecoliteracy website at <http://www.ecoliteracy.org/publications/pdf/challenge.pdf>
- Carroll, K. (1988). Looking/learning: Environment as art. *School arts*, 87(6), 31-34.

- Carruthers, B. (2006). *Mapping the terrain of contemporary ecoart practice and collaboration*. Retrieved from the UNESCO website on August 24, 2006 at <http://www.unesco.ca/en/activity/sciences/documents/BethCarruthersArtinEcologyResearchReportEnglish.pdf>
- Carson, R. (1965). *The sense of wonder*. New York: Harper & Row.
- Cerny, C. & Seriff, S. (1996). *Recycled/re-seen: Folk art from the global scrap heap*. New York: Harry N. Abrams.
- Chapman, L. (1992). *Art: Images and ideas*. Worcester, MA: Davis Publications.
- Chawla, L. (1998). Life paths into effective environmental action. *Journal of environmental education*, 31(1), 15-26.
- Clark, R. (1996). *Art education: issues in postmodernist pedagogy*. Reston, VA: National Art Education Association.
- Clover, D. (2000). Community arts as environmental education and activism: A labour and environment case study. *Convergence*, 33(4), 19-31.
- Cole, A. & Knowles, G. (2008). Arts-informed research. In G. Knowles & A. Cole (Eds.), *Handbook of the arts in qualitative research: Perspectives, methods, examples and issues* (pp. 55-70). London: Sage Publications.
- Collins, T. (2007). *Lyrical expression, critical engagement, transformative action: An introduction to art and the environment*. Retrieved from the Community Arts Network on June 20, 2007 at http://www.communityarts.net/readingroom/archivefiles/2003/06/lyrical_express.php

- Congdon, K. & Blandy, D. (1999). Working with communities and folk traditions: Socially ecological and culturally democratic practice in art education. In D. Boughon & R. Nason (Eds.), *Beyond multicultural art education: International perspectives* (pp. 65-83). Berlin: Waxmann Verlag.
- Congdon, K. (2000). Beyond the egg carton alligator: To recycle is to recall and restore. *Art education*, 53(6), 6-12.
- Csikszentmihályi, M. (1990). *Flow: The psychology of optimal experience*. New York: Harper and Row.
- Cunha Bastos, F. (2002). Making the familiar strange: A community-based art education framework. In Y. Gaudelins and P. Spiers, (Eds.), *Contemporary issues in art education*, (pp. 70-82). Upper Saddle River, NJ: Prentice Hall.
- Department of Environmental Education. (2001). *Organizing principles for ecological literacy*. [Data file]. Toronto: Toronto District School Board.
- Dick, B. (1999). *What is action research?* Retrieved from the Action Research Resources website on August 1, 2006 at <http://www.scu.edu.au/schools/gcm/ar/whatisar.html>
- Efland, A., Stuhr, P. & Freedman, K. (1996). *Postmodern art education: An approach to curriculum*. Reston, VA: National Art Education Association.
- Elliot, S. & Bartley, S. (1998). Materials arts design: An exploration in creativity, ecology and culture. *Art education*, 51(3), 52-55.
- Eisner, E. (1997). The new frontier in qualitative research methodology. *Qualitative inquiry*, 3(3), 259-273.

- Engel, S. (1991). The world is a white blanket: Children write about nature. *Children's environments quarterly*, 8(2), 42-45.
- Finley, S. (2003). Arts-based inquiry in QI: seven years from crisis to guerilla warfare. *Qualitative inquiry*, 9(2), 281-296.
- Foster, A. (2000). *Nature-storytelling: the importance of binary opposites*. Toronto: University of Toronto (unpublished thesis).
- Gablik, S. (1991). *The re-enchantment of art*. New York: Thames and Hudson.
- Gablik, S. (1995). Connective aesthetics. In S. Lacy (Ed.), *Mapping the terrain: New genre public art*, (pp. 74-87). Seattle: Bay Press.
- Gablik, S. & Marriott, J. (2007). Of tipping points and sinking ships: A conversation between James Marriott and Suzi Gablik. *Studies in art education*, 48(4), 336-340.
- Garoian, C. (1998). Art education and the aesthetics of land use in the age of ecology. *Studies in art education*, 39(3), 244-261.
- Goldsworthy, A. (1990). *Andy Goldsworthy: A collaboration with nature*. New York: Harry N. Abrams.
- Gooding, M. (2002). *Artists land nature*. New York: Harry N. Abrams.
- Gomez, A. (1999). American art of conspicuous recycling. *Art education* 52(3), 25-28, 38-39
- Gore, A. (2006). *An inconvenient truth*. (documentary). Los Angeles, CA: Paramount Classics.
- Gradle, S. (2007). Ecology of place: Art education in a relational world. *Studies in art education*, 48(4), 392-411.

- Graff, T. (1990). Art, art education and the ecological vision. *NSCAD papers in art education*, 5(1), 79-96.
- Graham, M. (2007). Art, ecology, and art education: Locating art education in a critical place-based pedagogy. *Studies in art education* 48(4), 375-391.
- Greene, M. (1995). *Releasing the imagination: Essays on education, the arts and social change*. San Francisco: Jossey-Bass.
- Grbrich, C. (2007). *Qualitative data analysis*. London: Sage Publications.
- Gruenewald, D. A. (2003). Foundations of place: A multidisciplinary framework for place-conscious education. *American Educational Research Journal*, 40(3), 619-654.
- Gurevitz, R. (2000). Affective approaches to environmental education: going beyond the imagined worlds of childhood? *Ethics, place and environment*, 3(3), 253-268.
- Hansen-Moller, J. & Taylor, G. (1991). Creative nature interpretation for children. *Children's environments quarterly* 8(2), 30-37.
- Haynes, D. (1995). Teaching postmodernism. *Art education*, 48(5), 23-24, 45-50.
- Heimlich, J. (1992). *Promoting a concern for the environment*. [Microform]. The Ohio State University Library System.
- Heron, J. & Reason, P. (2001) The Practice of co-operative inquiry: Research 'with' rather than 'on' people. In P. Reason & H. Bradbury (Eds.) *Handbook of action research: Participative inquiry and practice* (pp. 179-188). Thousand Oaks, CA: Sage.
- Herr, K. & Anderson, G. (2005). *The action research dissertation*. Thousand Oaks, CA: Sage.

- Hicks, L. & King, R. (1996). Ecofeminism, care and the environment: Towards a greening of art education. In G. Collins & R. Sandell (Eds.), *Gender issues in art education: Content, contexts and strategies* (pp. 90-101). Reston, VA: National Art Education Association.
- Hollis, C. (1997). On developing an art and ecology curriculum. *Art education*, 50(6), 21-24.
- Holloway, D. & Krensky, B. (2001). The arts, urban education and social change. *Education and urban society*, 33(4), 354-365.
- Holmes, S. (2002). Creative by nature: Integrating the arts into environmental science education. *Green teacher*, 69, 23-28.
- Inwood, H. (2003). Creating a map for eco-art education, *Green teacher*, 72, 15-18.
- Inwood, H. (2006). Growing art in school gardens, *Green teacher*, 80, 39-42.
- Inwood, H. (2008). At the crossroads: Situating place-based art education. *Canadian journal of environmental education*, 13(1), 29-41.
- Iozzi, L. (1989). Part two: Environmental education and the affective domain. *Journal of environmental education* 20(4), 6-13.
- Irwin, R. & de Cosson, A. (Eds.) (2004). *A/r/tography: Rendering self through arts-based living inquiry*. Vancouver: Pacific Educational Press.
- jagodzinski, j. (1987). Towards an ecological aesthetic: Notes on a "green" frame of mind. In D. Blandy, & K. Congdon, (Eds.), *Art in a democracy* (pp. 138-163). New York: Teachers College Press.

- jagodzinski, j. (2007). The e(thi)co-political aesthetics of designer water: The need for a strategic visual pedagogy. *Studies in art education* 48(4), 341-359.
- Kastner, J. & Wallis, B. (Eds.) (1998). *Land and environmental art*. London: Phaidon.
- Keifer-Boyd, K. (2002). Open spaces, open minds: Art in partnership with the earth. In Y. Gaudelins and P. Spiers, (Eds.), *Contemporary issues in art education*, (pp. 327-343.) Upper Saddle River, NJ: Prentice Hall.
- Kemmis, S. & McTaggart, R. (2003). Participatory action research. In N. Denzin & Y. Lincoln, (Eds.), *Strategies of qualitative inquiry (2nd edition)* (pp. 336-396). Thousand Oaks, CA: Sage.
- Krug, D. (1997). *Arts and ecology: Interdisciplinary approaches to curriculum*. Retrieved on Feb. 21, 2001 from the Green Museum website at <http://greenmuseum.org/c/aen/>
- Krug, D. (2003). *Teaching art in the context of everyday life*. Retrieved on July 30, 2003 from the Green Museum website at http://greenmuseum.org/generic_content.php?ct_id=134
- Lankford, E. (1997). Ecological stewardship in art education. *Art education*, 50(6), 47-53.
- Lawrence-Lightfoot, S., & Davis, J. (1997). *The art and science of portraiture*. San Francisco, CA: Jossey-Bass.
- Leeming, F., Dwyer, W., Porter, B. & Cobern, M. (1993). Outcome research in environmental education: a critical review. *Journal of environmental education*, 24 (4), 8-21.
- Leland, N. & Williams, V. (2000). *Creative collage techniques*. Iola, WI: North Light Books.

- Lewin, K. (1948). *Resolving social conflicts*. New York: Harper and Rowe.
- Lindholdt, P. (1999). Writing from a sense of place. *Journal of environmental education*, 30(4), 4-10.
- Lippard, L. (1997). *The Lure of the local: senses of place in a multicentered society*. New York: The New Press.
- London, P. (1994). *Step outside: Community-based art education*. Portsmouth, NH: Heinemann.
- Lousley, C. (1999). (De)Politicizing the environment club: environmental discourses and the culture of schooling. *Environmental education research*, 5(3), 293-304.
- Louv, R. (2005). *Last child in the woods: Saving our children from nature-deficit disorder*. Chapel Hill, NC: Algonquin Books.
- Ludema, J., Cooperrider, D., & Barrett, F. (2001). Appreciative inquiry: The power of the unconditional positive question. In P. Reason & H. Bradbury (Eds.) *Handbook of Action Research: Participative inquiry and practice* (pp. 189-199). Thousand Oaks, CA: Sage.
- Luke, T. (1992). Art and the environmental crisis. *Art journal* 51(2), 72-76.
- Luxbacher, I. (2006). *The jumbo book of outdoor art*. Toronto: Kids Can Press.
- Martin, L. & Cain, D. (2003). *Nature's art box*. North Adams, MA: Storey Publishing.
- Matilsky, B. (1992). *Fragile ecologies: Contemporary artists' interpretations and solutions*. New York: Rizzoli.
- McKibben, B. (2005). What the world needs now, is art, sweet art. Retrieved on Feb. 25, 2008 from the Grist website at <http://www.grist.org/comments/soapbox/2005/04/21/mckibben-imagine/index.html>

- McFee, J.K. & Degge, R. (1977). *Art, culture, and environment: A catalyst for teaching*. Belmont, CA: Wadsworth.
- Miller, J. & Seller, W. (1990). *Curriculum: Perspectives and practice*. Toronto: Copp Clark Pitman.
- Mills, G. (2003). *Action research: a guide for the action researcher*. (2nd ed.) Upper Saddle River, NJ: Merrill Prentice Hall.
- Mullineaux, C. (1988). Environmental grounds for art activities. *School arts* 87(6), 28-30.
- Naested, I. (1998). *Art in the classroom: An integrated approach to teaching art in Canadian elementary and middle schools*. Toronto: Harcourt & Brace Co.
- Neilsen, L. (1998). *Knowing her place: Research literacies and feminist occasions*. San Francisco, CA/Halifax, Nova Scotia: Caddo Gap Press/Backalong Books.
- Neperud, R. (1995a). Transitions in art education: A search for meaning. In R. Neperud (Ed.), *Context, content and community in art education: Beyond postmodernism* (pp. 1-21). New York: Teacher's College Press.
- Neperud, R. (1995b). Texture of community: an environmental design education. In R. Neperud (Ed.), *Context, content and community in art education: Beyond postmodernism* (pp. 222-247). New York: Teacher's College Press.
- Neperud, R. (1997). Art, ecology and art education: Practices and linkages. *Art education*, 50(6), 14-20.
- Oja, S. & Smulyan, L. (1989). *Collaborative action research: A developmental approach*. London: The Falmer Press.
- Orr, D. (1992). *Ecological literacy: Education and the transition to a postmodern world*. Albany: State University of New York Press.

- Pauli, L. (2003). *Manufactured landscapes: the photographs of Edward Burtynsky*.
Ottawa: National Gallery of Canada.
- Powers, A. (2004). An evaluation of four place-based education programs. *Journal of environmental education*, 35(4), 17-32.
- Primal Seeds (2006). Retrieved July 20, 2006 from the Primal Seeds website at
<http://www.primalseeds.org/guerrilla.htm>.
- Puk, T. (2002). *Ecological Literacy as the first imperative*. Retrieved on July 16, 2006
from the Lakehead University Faculty of Education website at
<http://flash.lakeheadu.ca/~tpuk/Version%20Principles.pdf>
- Ramsey, D. (2002). The role of music in environmental education: Lessons from the
cod fishery crisis and the Dust Bowl days. *Canadian journal of
environmental education*, 7(1), 183-198.
- Reason, P. & Bradbury, H. (2001). *Handbook of action research: Participative inquiry
and practice*. Thousand Oaks, CA: Sage.
- Riedelsheimer, T. (2004) (director). *Andy Goldsworthy: Rivers and tides, working with time*.
(documentary). New York: New Video Group.
- Rosenthal, A. (2003). Teaching systems theory and practice through environmental art.
Ethics and the environment 8(1), 153-168.
- Rosenthal, A. (2007). *Eco-art: Our common values*. Retrieved on November 29, 2007
from Rosenthal's website at <http://www.studiotara.net/ecoart/values/>
- Russell, C. (1997). Approaches to environmental education: Towards a transformative
education. *Holistic education review*, 10(1), 34-40.
- Sanders, P. (1992). Eco-art: Strength in diversity. *Art journal*, 51(2), 77-81.

- Sanger, M. (1997). Sense of place in education. *Journal of environmental education*, 29(1), 4-8.
- Sauvé, L. (1998). Environmental education between modernity and postmodernity: Searching for an integrating educational framework. In A. Jarnet (Ed.), *A colloquium on the future of environmental education in a postmodern world* (pp. 44-55). Whitehorse: Whitehorse Yukon College.
- Schensul, J. & Schensul, S. (1992). Collaborative research: Methods of inquiry for social change. In M. LeCompte, W. Millroy & J. Preissle (Eds.) *Handbook of qualitative research in education* (pp. 161-200). San Diego: Academic Press.
- Schram, T. H. (2003). *Conceptualizing qualitative inquiry: Mindwork for fieldwork in education and the social sciences*. Upper Saddle River, NJ: Merrill Prentice Hall.
- Schwandt, T. (2000). Three epistemological stances for qualitative inquiry. In N. K. Denzin & Y. S. Lincoln (Eds.) *Handbook of qualitative research (2nd edition)* (pp. 189-212). Thousand Oaks, CA: Sage Publications.
- Selby, D. (2000). A darker shade of green: The importance of ecological thinking in global education and school reform. *Theory into practice*, 39(2), 89-96.
- Simpson, J. (1995). Choices for an urban art education. *Arts education policy review*, 96(5), 27-30.
- Slattery, P. (2003). Troubling the contours of arts-based educational research. *Qualitative inquiry*, 9(2), 192-197.
- Smith, G. & Williams, D. (1999). *Ecological education in action: On weaving education, culture and the environment*. Albany, NY: State University of New York Press.

- Smith, G. (2002). Place-based education: Learning to be where we are. *Phi delta kappan*, 83, 584-594.
- Sobel, D. (2004). *Place-based education: Connecting classrooms and communities*. Great Barrington, MA: The Orion Society.
- Sobel, D. (2005). *Beyond ecophobia: Reclaiming the heart in nature education*. Great Barrington, MA: The Orion Society.
- Sonfist, A. (1983). *Art in the land: A critical anthology*. New York: Dutton.
- Spaid, S. (2002). *Ecovention: Current art to transform ecologies*. Cincinnati, Ohio: The Contemporary Arts Center.
- Stankiewicz, M. & Krug, D. (1997). Art & ecology: an editorial. *Art education*, 50(6), 4-5.
- Sullivan, G. (2005). *Art practice as research: Inquiry in the visual arts*. Thousand Oaks, CA: Sage.
- Toronto District School Board. (2006). *What is ecological literacy?* Retrieved on June 30, 2006 from the TDSB Outdoor Education Schools website at http://toes.tdsb.on.ca/ecological_literacy_resources.asp
- Tronto, J. (1993). *Moral boundaries: A political argument for an ethic of care*. New York: Routledge.
- Thomashow, M. (1995). *Ecological identity*. Cambridge, MA: The MIT Press.
- Thurber, F. (1997). A site to behold: Creating curricula about local urban art. *Art education*, 50(6), 33-39.
- Turner, K. & Freedman, B. (2004). Music and environmental studies. *Journal of environmental education*, 36(1), 45-53.

- Ulbricht, J. (1998). Changing concepts of environmental art education: toward a broader definition. *Art education*, 51(6), 22-24, 33-34.
- Watrin, R. (1999). Art as research. *Canadian review of art education*, 26(2), 92-100.
- Weston, A. (2004). What if teaching went wild? *Canadian journal of environmental education*, 10, 31-46.
- Wilson, R. (1995). Ecological autobiography. *Environmental education research* 1(3), 305-314.
- Wilson, S. (2004). Fragments: Life writing in image and in text. In R. Irwin & A. de Cosson (Eds.), *A/r/tography: Rendering self through arts-based living inquiry* (pp.41-59). Vancouver: Pacific Educational Press.
- Woodson, J. (2005). *Show way*. New York: G.P. Putnam & Sons.
- Wolcott, H. (1994). *Transforming qualitative data: description, analysis and interpretation*. Thousand Oaks, CA: Sage.
- Working Group on Environmental Education. (2007). *Shaping our schools, shaping our future: Environmental education in Ontario's schools*. Toronto: Ontario Ministry of Education.
- York, J., Harris, S. & Herrington, C. (1993). Art and the environment: A sense of place. *Art education*, 46(1), 25-28, 53-57.
- Zeichner, K. (2001). Educational action research. In P. Reason & H. Bradbury (Eds.), *Handbook of action research: Participative inquiry and practice* (pp. 273-282). Thousand Oaks, CA: Sage.

APPENDICES

Appendix A: Invitation to participate

September 22, 2006

Thank you for your interest in participating in my dissertation research on eco-art education. I am excited about the possibility of you joining the research team and value the contribution you can make to it. The purpose of this letter is to detail some of the aspects of this research project, and to secure your approval to proceed. The project is entitled "*Artistic Approaches to Ecological Literacy: developing eco-art education in elementary classrooms.*" It involves building a team of five teacher-researchers (four elementary teachers and myself) to develop a new curricula in eco-art education. Eco-art education integrates art education with environmental education as a means of developing awareness of and engagement with environmental concepts and issues. In this I am interested in not only developing a new curricula, but also in better understanding the experience the team goes through in developing it.

The research approach I plan to use to support the curriculum development is called Collaborative Action Research, one that seeks greater understanding (through research) as well as positive social change (through action). Working both collaboratively and individually, team members will be asked to develop and implement lessons/unit(s) in eco-art education; building a working definition of this field will be part of the process. This may involve reading, research or reflection as part of the team or on your own; your thoughts on the process may be captured through audio taped conversation, writings or artworks (in part decided by the team at its first meeting).

In order to be involved, team members need to be practicing elementary educators with some experience teaching art education in the past. You do not need any previous experience in eco-art education, but simply an interest in exploring how to teach eco-art education to/with your students. The time commitment to the project will vary for each team member, however at minimum you will be asked to complete one written questionnaire and attend 4-6 ninety minute team meetings (held outside of teaching hours), in addition to the time it takes to design and implement new lessons. The first team meeting will take place in the evening on October 10, 2006.

I value your enthusiasm and thank you for considering a commitment of your valuable time and energy. If you decide to join the research team, I will add your name to the roster and forward you a letter of consent for your signature. If you have any further questions about the project, please feel free to contact me at your convenience.

With warm regards,

Appendix B: Teacher-Researcher's Agreement

Oct. 10, 2006

Thank you for agreeing to participate in a research project that will contribute to the development of an emerging model of eco-art education. Hilary Inwood, a doctoral student at Concordia University is initiating this research project, which will form the basis for her doctoral thesis work. The following outlines the study and confirms information about your involvement. If you require any further information or explanation, please contact Hilary.

The project is entitled "Artistic Approaches to Ecological Literacy: Developing Eco-art Education in Elementary Classrooms." The research aims to explore how art education can be used to develop students' ecological literacy through an exploration of art and the environment. Working as part of a research team, teachers will be considered collaborators on the project, aiming to combine the team members' knowledge and expertise to develop a new curriculum initiative. Teacher-researchers will be asked to share their ideas on and experiments with eco-art education as a means of creating an open dialogue and inquiry on the topic.

Time Commitment: The time commitment to the project will vary for each team member, however at minimum you will be asked to complete one written questionnaire and attend 4-6 ninety minute team meetings (held outside of teaching hours). In addition you will be asked to design and implement new lessons in eco-art education with your class (the time to do this will vary from teacher to teacher). The first team meeting will take place in October 2006. Data collected as part of the project will be used to build a curricular and pedagogical model(s) of eco-art education that will be shared with other educators through workshops, courses and publications.

Voluntary Involvement: There may be other voluntary opportunities for involvement as the research study unfolds, such as professional development opportunities, conference presentations, workshops, or publications, etc. For example, having my involvement in your classroom is voluntary; I will be available to observe and assist with eco-art lessons as you desire. Your agreement for these will be sought before any commitment is required. You may, at any time, withdraw from the study by simply indicating your intention to withdraw. No evaluative judgment will be made about you if you choose to withdraw from the study. All raw data connected to your participation will be immediately destroyed.

Benefits/Risks: By participating in this study you will have the opportunity to reflect on your approach to at education, and contribute to the development of a new model of art education that supports environmental education initiatives. This model will encourage you to develop curricular content for your students, and to share in that created by other team members. You will also gain experience with the collaborative action research methodology for use in your own professional development. The risks associated with

this project are minimal, and are the same as those normally associated with teaching at the elementary level.

Record-keeping: You will be asked to maintain a written or spoken journal or visual record of your experiences for this project. The focus group meetings and interviews will be audio-taped for record-keeping purposes, and these tapes will be transcribed. Photographs of your class and/or their artworks will be made if parental permission is secured. You will have access to all raw data collected that involves you. All of the raw data collected during the study will be secured in a locked office for a period of five years, at which point it will be destroyed.

Compensation: As this is an unfunded study, membership on this research team is voluntary with no financial compensation.

Confidentiality: All the raw data will be kept in confidence and you will not be identified by name or school in the study unless you so choose (see below). Only you and Hilary Inwood will be privy to the data that is collected. The data will **not** be available to the administration of your school and will **not** be used to evaluate your performance as part of any school or system evaluation.

Your agreement to participate in this study entails the following:

- Completing an initial written questionnaire;
- Participating in research team meetings and other research activities as decided by the research team throughout the school year 2006-07;
- Permitting all team meetings and individual interviews to be audio-taped;
- Developing and implementing lessons in eco-art education with your class;
- Acknowledging that all data collected as part of this study will be considered confidential at all times and will kept in a secure location during and after the study;
- Deciding whether your own name or a pseudonym will be used in any dissemination of data or findings for the study (see below);
- Granting permission for the data collected (oral, written and image-based) as part of the study to be used for the purposes of completing Hilary Inwood's doctoral degree, including a dissertation and any subsequent presentations and publications.

I have read and understood the conditions under which I will participate in this study and give my consent to be a teacher-researcher. In research data and findings, please use:

(check one) _____ my own name _____ a pseudonym

Name: _____ Date: _____

Appendix C: Initial Questionnaire for Teacher-Researchers

Name:

School:

Grade level currently teaching:

How many years have you taught?

What grade levels and subject areas have you taught?

Briefly describe any professional development have you engaged in.
(eg. degrees, AQ or other courses, workshops, etc.)

Describe your experience in visual arts education.

Do you have any prior experience in environmental education? If, please describe.

Do you have any previous experience with eco-art education? Please describe.

Do you have any previous experience with Action Research? If so, please describe.

What are your reasons for joining this research project?

What expectations do you bring to this research project? What would you like to get from the process?

Appendix D: Data Collection in the Study

<i>Data Collection Method</i>	<i>Date Conducted</i>	<i>Duration</i>	<i>Data</i>
Pre-questionnaire	October 2006	n/a	Written text
Focus group meeting #1	October 2006	2 hours	Audiotapes and transcripts
Focus group meeting #2	November 2006	2.5 hours	Audiotapes and transcripts
Focus group meeting #3	February 2007	2.5 hours	Audiotapes and transcripts
Focus group meeting #4	April 2007	2.5 hours	Audiotapes and transcripts
Focus group meeting #5	June 2007	2.5 hours	Audiotapes and transcripts
Participatory Observation /Runnymede PS	October 2006	1.5 hours	Written text, Research journals, photographs
Participatory Observation /Runnymede PS	April 2007	1.5 hours	Written text, Research journals, photographs
Participatory Observation /Kew Beach	September 2006	1 hour	Research journals
Participatory Observation /West Rouge PS	November 2006	2.5 hours	Research Journals, photographs
Participatory Observation /West Rouge PS	April 2007	2.5 hours	Research journals, photographs
Participatory Observation /Annette PS	May 2007	2.5 hours	Research journals, photographs
Field Observation /Runnymede	February 2007	1 hour	Written text, Research journals
Field Observation /Runnymede	February 2007	1 hour	Written text, Research journals
Field Observation /Kew Beach	March 2007	3 hours	Written text, Research journals, photographs
Field Observation /West Rouge	June 2007	1.5 hours	Written text, Research Journals, photographs

Appendix E: Permission Letter for Student and Parental Approval

November 10, 2006

Dear Parent or Guardian,

I am a researcher studying how art can be used to support learning in environmental education. I am currently working with your child's teacher to develop innovative art lessons that not only meet curriculum expectations, but also help teach children about the environment. Your child will be participating in these art lessons as a regular part of their classroom art and/or science lessons.

As part of this research, your teacher and I would like to photograph students in the process of making art and their final artworks to be used as examples of these lessons. These photographs would be used to illustrate the findings of the research, and may be reproduced in my doctoral thesis and/or educational journals in the future.

The External Research Review Committee of the TDSB has granted approval for this study. The principal has also given permission for this study to be carried out in the school. Participation in this study is voluntary, and the taking of photographs will not affect your son/daughter's attendance in class nor his/her evaluation by the school. After the photographs have been taken, the students will not be named or credited individually for the artworks so as to protect their privacy.

Please indicate on the attached form whether you permit your son/daughter and their artwork to be photographed as a part of this study. Your cooperation will be very much appreciated. Contact me by the email address below if you have further questions.

Sincerely

Hilary Inwood
Doctoral Researcher, Concordia University

PARENTAL/GUARDIAN CONSENT FORM

I agree to allow photographs to be taken of _____ (son/
daughter's name) or his/her artwork for the purposes of this study.

I do not wish to allow photographs of _____ (son/
daughter's name) or his/her artwork to be taken for the purposes of this study.

Parent's/Guardian's signature _____ Date

Please return this form to your child's teacher at your earliest convenience.

Appendix F: List of Coding Categories

Barriers to eco-art education: lack of resources, no barriers, too busy

Collaborative action research framework: evidence, perceptions, results, future actions

Challenges: curriculum overload, discomfort with materials, lack of expertise, lack of meaning, lack of support, scheduling, student behaviour, vandalism, weather

Eco-art advantages: cross-curricular connections, excitement/engagement, improved attachment to place, improved status, increased environmental awareness, less consumption, less expensive, less polluting, memorable learning, more accessible, more time outside, new feelings of eco-art

Eco-art definitions: combinations with traditional definitions, contains message, feeling, little pollution, natural imagery, natural materials, natural processes, not eco-art, other ideas on definitions, questions, recycled materials, results, site-based, teacher's influence

Eco-art lesson ideas: connections to nature, integrations, deeper meanings, feelings, inspirations, lesson ideas, materials, non-polluting, other art forms, place-based, process, traditional ideas

Eco-art pedagogy: celebrating efforts, connections to environmental issues, connections to professional artists, disconnects, exposure to nature, general approach, influence of teacher, integration with other subjects, little change, modeling 3Rs, multi-tasking, photographing ephemeral works, re-framing, student initiative, timing

Expectations: growth in others, life-long learning, motivations, professional enhancement, sharing interests, support

Inspirations: books, each other, event, mass media, other artists, places, professional development, students, teacher

Materials: disconnect, less waste, natural materials, natural site, non-traditional materials, traditional materials

Previous arts experiences: art history, art-making, own classroom, professional development, post-secondary education, taught art, via family

Previous environmental education experiences: activism, childhood experiences, ecoclub experiences, inspired by students, native influence, nature connections, new thing

Resources: artists, books, DVDs, music, sites, websites

Student reactions: calmness, connections to 3Rs, connections to nature, difficulty, disappointed, excitement, fear, focused, fun, inspired, making meaning, off-task, ownership, risk-taking

Appendix G: Ethical Review Permission from the TDSB



Organizational Development

1 Civic Centre Court, Ground Floor, Toronto ON M9C 2B3 • Tel: (416) 394-4929 • Fax: (416) 394-4946

October 6, 2006

Dear Hilary Inwood:

RE: *Artistic Approaches to Ecological Literacy –
Developing eco-art education in elementary classrooms*

This is to confirm our approval of your request to conduct the above-mentioned study and grants permission for you to approach the teachers and principals in the identified elementary schools to obtain their consent for participation. The clear response and additions you submitted to us in your revised application have satisfactorily addressed all the concerns outlined in my letter dated October 5, 2006.

Please note that verbal assent from the principals will suffice.

Also please remember to forward to me a copy of your Criminal Records Check if you intend to visit any of the classrooms for observation or support.

We wish you luck with this project and look forward to receiving a report about your findings.

Sincerely,

A handwritten signature in black ink, appearing to read "Maria Y.M. Yau".

Maria Y.M. Yau, Chair
External Research Review Committee, TDSB
Phone: 416-394-4951 / E-mail: maria.yau@tdsb.on.ca

Appendix H: Resource List

All of the resources listed below were used by or recommended by the team members in this research project.

Artists

Andy Goldsworthy
Emily Carr
Eric Carle
George Littlechild
Faith Ringgold
Brian Jungen

Musicians

Chris McKool
Jim and Jerry Brody

Children's Books

Base, G. (2001). *The Water Hole*. Toronto: Doubleday Canada.
Baylor, B. (1985). *Everybody Needs a Rock*. New York: Aladdin.
Bunting E. (1996). *Some Day a Tree*. New York: Clarion Books, 1996.
Ehlert, L. (2005). *The Leaf Man*. New York: Harcourt.
Ehlert, L. (2006). *In My World*. New York: Harcourt.
Giono, J. (2003). *The Man Who Planted Trees*. London: Random House.
Hopkinson, D. *Sweet Clara and the Freedom Quilt*. New Mexico: Dragonfly Books.
Isadora, R. (2000). *Listen to the City*. New York: Putnam Juvenile.
Jonas, A. (1992). *Round Trip*. New York: Greenwillow Books.
Mcdonald, M. (2004). *Judy Moody Saves the World*. Somerville, MA: Candlewick.
Murphy, P. (1993). *Nature's Designs*. San Francisco, CA: Chronicle Books.
Peet, B. (1966). *Farewell to Shady Glade*. New York: Houghton Mifflin.
Rose, D. (2001), *The People Who Hugged the Trees*. New York: Roberts Rinehart Pub.
Showers, P. (1991). *The Listening Walk*. Toronto: HarperCollins Canada.
Woodson, J. (2005). *Show Way*. New York: GP Putnam And Sons.

Resource Materials

Artistic Elements. Evergreen, n.d.
<http://www.evergreen.ca/en/lg/designideas.html>

Design Ideas in the Outdoor Classroom. Evergreen, n.d.
<http://www.evergreen.ca/en/lg/designideas.html>

Gablik, S. (1991). *The Re-enchantment of Art*. New York: Thames and Hudson.

Songs

Denise Gagne, “We only have one planet”

Denise Gagne, “Compost”

Linnea Good, “O Great Earth.”

Websites

Green Museum

<http://www.greenmuseum.org>

Community Arts Network – Arts and the Environment

<http://www.communityarts.net/archivefiles/environment/index.php>

Making Books

<http://www.makingbooks.com/>

“Unearthing Art” lesson plan (inspired by Andy Goldsworthy)

<http://home.oise.utoronto.ca/~arted/resources.htm>

Stream of Dreams

<http://www.streamofdreams.net/index.php?pgid=1>

Be the Change

<http://www.accessola.com/osla/bethechange/home.html>

The Peace Tree

www.peacetreeday.com

“If I were Prime Minister”

<http://www.youtube.com/group/you4PM>

Rematerial

www.rematerial.ca

DVDs

I Can Make Art Like Emily Carr. DVD.

Documentary on Carr’s work and students’ efforts to make a mural in their school.

Rivers and Tides. DVD, 2001.

Documentary on Andy Goldsworthy’s work.

An Inconvenient Truth. DVD, 2006.

Al Gore’s documentary on climate change.

Places

Runnymede P.S. Hillside Garden

West Rouge P.S. Butterfly Garden

Warren Park Outdoor Education Centre, Humber Park

High Park

Appendix I: TDSB's Organizing Principles for Environmental Literacy

Organizing Principles for Ecological Literacy

This Framework identifies three major components of environmental literacy across grade levels: Sense of Place, Ecosystems Thinking, and Human Impacts. Symbols indicate the learning expectations that help build an understanding of these components.

SENSE OF PLACE

Sense of Place is an informed appreciation of and knowledgeable attachment to a place, based on familiarity with both its features and its needs. This component lays the foundation for the development of an environmental ethic of care and stewardship through helping students develop a vivid sense of their connection to "here." It begins with their neighbourhood, their local landscapes, and the ecology, history and geography of "home." It then expands their knowledge across grade levels to their provincial, national and global communities.

Sense of Place asks the question:

What explorations of the natural and human-built local environment help to make it more personally meaningful?

ECOSYSTEMS THINKING

Understanding ecosystems is basic to developing ecological literacy. Ecosystems are communities of plants and animals - including humans - that are dependent on each other as well as on the non-living parts of the environment. Ecosystems Thinking invites us to look at the "big picture."

Ecosystems Thinking asks the question:

What are both the immediate and the broader and longer-term ways in which human and natural systems are interdependent and interconnected? What are the implications of these relationships?

HUMAN IMPACTS

Human well-being is dependent on the health of ecosystems. The Human Impacts component of developing environmental literacy invites an examination of the effects of everyday human activities on the earth's ecosystems. Understanding how people affect the earth in meeting their needs and wants can contribute to the development of new knowledge, attitudes and skills to lessen negative impacts and build upon those which are positive. Exploring this component helps students become more aware of the quantity of natural resources they use, the wastes they produce, the resulting effects on ecosystems (and in turn the effects of altered ecosystems on people) and the range of positive choices that can lead to a sustainable future. Since all learning that is not reinforced by action is gradually extinguished, this third component implies a call to positive action.

In meeting our needs and wants, what kind of impacts are we having on ecosystems? What changes could we make to help maintain and/or restore healthy ecosystems (which support healthy people)?