A Garden of Learning:
Exploring Critical Place-Based Pedagogy in Kindergarten

by

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Ontario Institute for Studies in Education of the University of Toronto

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Abstract

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The pressing environmental crisis compels educators to question the purposes and practices of formal education and to adopt environmentally-informed transformative approaches to education. Critical place-based learning refers to a wide variety of approaches to teaching and learning that take the local context as the starting point for curriculum that fosters a critical stance towards the status quo. There is a need for more research that brings together environmental and critical learning goals in the early years. In this qualitative case study, I explored critical place-based learning and teaching in kindergarten. I explored the parallels between critical place-based learning and a Reggio Emilia-inspired emergent curriculum approach. I considered how teacher-researcher collaboration served to support teacher professional development. This study demonstrated the possibilities, benefits, and challenges, of critical place-based learning in the early years. I conclude with some recommendations for facilitating critical place-based learning in the early years.
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CHAPTER 1: INTRODUCTION

Inspiration from Place

I have taught primary grades in Toronto for several years. A few years ago, I traveled to Ethiopia to work for two years as a teacher trainer in a remote rural area. In Ethiopia, what I observed was the absence, in almost all schools, of local knowledge and experience. I was deeply affected by the social and environmental implications. Children’s experiences and knowledge of farming and raising animals were dismissed within a school context that valued certain types of knowledge, exemplified through the rote learning of the letters of the Amharic alphabet and the memorization of number facts. Features of the landscape, characteristics of how houses are constructed, and ways of caring for animals, were all part of the formal national curriculum for the primary grades, but were taught strictly through the textbook, rather than through the children’s own experiences or the rich local opportunities outside the classroom walls. Important local environmental problems such as soil erosion or water quality were largely ignored by most schools. Most importantly, schools were not teaching children the skills, values and cultural orientation to live well in the social and environmental place where they were. The numbers of desperately unemployed young people, whose formal education had taught them to reject the rural, agricultural life, were a testament to the failure of education to teach for that place; and so was the high value placed on Western processed foods over more nutritious local foods; or the reliance on expensive pesticides over traditional farming practices. But also, I wondered what were the impacts that I couldn’t see, the lost possibilities of an education that—rather than preparing children for a future that doesn’t exist—would help children and families to face with greater strength, creativity, and criticality, their own realities.
When I returned to Canada, I brought with me a sharper lens through which to consider schooling, its purposes and practices. And I recognized the same failure of local reality to inform schooling, here in Toronto. Real issues that are important to families and children—access to nutritious, unprocessed foods; access to safe, affordable childcare, and places to play outside; air quality; affordable housing; and poverty-related health issues like asthma and obesity—are so often swept to the periphery. I could see the failure of the conventional system of schooling in Ontario to bond—or even to attempt to bond—minds and nature (Orr, 1994/2004) in a way that would support children to develop the skills and orientation to live sustainably, creatively, and happily in their places. Assigned to teach kindergarten for the first time, I emphasized strengthening connections between the school experience and children’s home experiences, and in particular the natural world around us. I emphasized developing a relationship with nature through nature walks and spending time outside; baking and cooking as a means of both participatory learning and establishing children’s comfort with healthy foods; and building strong relationships with parents and families. Despite some success, I also came away from this effort with the sense that an approach to teaching and learning that centres around the local place is forced to work at cross-purposes to the spirit and structure of the provincial curriculum expectations, the organization and culture of the school itself, and the orientation of most teachers and mainstream teacher professional development (Stevenson, 1987/2007).

Yet, it is within this educational context that the Ontario Ministry of Education has released a new policy document, *Policy framework for environmental education in Ontario schools* (2009). This document emphasizes fostering children’s sense of connection to each other and to the natural world through active participation. It holds within its pages the potential to transform schooling in Ontario from an approach that relegates place to the periphery, to one that
recognizes both the potential of place to engage children in learning, and the innate, undeniable value of place if we are to live sustainable, healthy lives.

**The Journey**

Carrying this backpack of experiences and ideas, I embarked on a journey that has become this case study. My purpose through this research project has been to expand the understanding and experience of critical place-based learning and teaching. Working collaboratively with a kindergarten teacher, Doris, to develop and implement critical place-based experiences, my intention has been to develop a deeper awareness of how critical place-based pedagogy (Gruenewald, 2003) might be applied with kindergarten children, particularly in an urban Ontario school. I am interested in gaining a better understanding of the implications of critical place-based pedagogy for the social, environmental, and academic development of young children. At the same time, my hope was that this case study would allow me to explore the complex factors that influence the way teachers understand and adopt critical place-based approaches, and in particular how critical place-based pedagogy fits in with, challenges, or is challenged by, the urban Ontario physical and political context. Finally, I hoped to understand teacher collaboration as a means of professional development that might help teachers to negotiate the challenges of change that critical place-based pedagogy presents.

To explore the larger question, *How might critical place-based pedagogy be enacted in an urban kindergarten?*, I developed three subquestions that help to focus my research:

- How do teachers and children experience a critical place-based approach to learning in a kindergarten class?

That is, what might actually happen inside and outside of the classroom, in a critical place-based classroom? This subquestion focuses my attention on what critical means and on what place-

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1 All participants’ names have been changed.

- What are some of the challenges for a teacher implementing critical place-based learning in kindergarten, in the Ontario context?

This subquestion focuses on the challenges the teacher faces, and where these challenges come from. In particular, I was inspired by this question to see the idea of challenge as an opportunity to go further, for teachers to deepen their understanding of critical place-based pedagogy, and to deepen children’s experiences.

- How does our collaboration contribute to the teacher’s understanding of critical place-based learning in kindergarten?

This subquestion lets me consider specifically how the process of collaboration that Doris and I engaged in might serve as both a research method and an approach to teacher professional development to create a place for change.

**Overview of the Thesis**

As I present my research, I address these subquestions, drawing an emerging map of the journey in critical place-based pedagogy that I embarked on with Doris and the children in her kindergarten class. Chapter 2 is a review of the literature on critical place-based pedagogy, with a focus on the literature regarding young children. In particular, I include a subsection on Reggio Emilia-inspired emergent curriculum, as Doris and I were both interested in exploring the shared spaces between critical place-based pedagogy and emergent curriculum. I include a section on teacher professional development for transformation, with particular attention to the literature on collaboration as a form of professional development. In Chapter 3, I discuss the methodology of this project. I explore the literature on qualitative research, in particular on the case study
approach. I describe the design of the research, data collection methods, and data analysis; and discuss some of the ethical considerations and limitations of the study, and set the context for the project. The emergent nature of this project meant that in practice, data collection, the direction and activities of the research project, and data analysis, were continuously intertwined. Therefore, Chapters 4, 5, and 6 integrate a presentation of my research findings with an analysis of their significance and implications, organized according to the subquestions described above. In Chapter 4, I address the question, *How do teachers and children experience a critical place-based approach to learning in a kindergarten classroom?* Here, I present and analyse the experiences of the children and the teachers (Doris, the teacher; Rita, the teaching assistant) and myself, as teacher-researcher, over the course of the project. In Chapter 5, I address the question, *What are some of the challenges for a teacher implementing critical place-based learning in kindergarten, in the Ontario context?* I consider the challenges Doris and I faced as teacher and researcher, from the perspective of opportunities, and the role of teacher collaboration in helping to negotiate these challenges. In Chapter 6, I look at the question *How does our collaboration contribute to the teacher’s understanding of critical place-based learning in kindergarten?* I consider how our collaboration helped to create and then exploit or respond to, opportunities for professional learning. Finally, in Chapter 7, I look ahead to what other destinations my research has now mapped out: where else can we go as researchers and teachers interested in the potential of critical place-based pedagogy, and how might we begin to get there?
CHAPTER 2: LITERATURE REVIEW

I start this chapter by exploring the field of environmental education, and I place the literature on critical place-based pedagogy within this wider context. I examine the literature that relates best practices in education for young children to critical place-based learning, with a particular focus on Reggio Emilia-inspired emergent curriculum approaches. I explore teacher professional development for transformation. Continuing the thread of emergent curriculum, I include a subsection on documentation – an essential element of emergent curriculum approaches – as a vehicle for professional learning. Because this project is designed as a collaboration between Doris and me, I include a subsection on collaboration as a form of professional development.

Environmental Education: Changing Direction

There has been a broad popular perception of environmental education as teaching about environmental problems—often distant or abstract issues, like rainforest destruction or climate change, of which children have no direct experience—and often in a conventional, transmissive manner (such approaches are discussed by Mayer, 1995 and Sobel, 1995). However, this approach is being increasingly replaced by one that recognizes that children need opportunities to develop an affection for and relationship with nature if they are to develop the knowledge and sense of responsibility to care for nature (Orr, 1994/2004; Sobel, 1996). In their discussion of school ground greening, Janet Dyment and Alan Reid (2005) recommended closer links between the outdoor element of green school grounds and the “socio-political and environmental learning agendas of citizenship and sustainability education” (p.297). According to Paul Hart (2008), “environmental education is more a philosophy than a curriculum area” (p. 197). Rather than simply referring to a body of knowledge to learn, this sense of environmental education
encompasses the ways we think, learn, and relate to each other and to the natural world (Orr, 1994/2004). A number of different authors and educators have described this approach to teaching and learning using different terms; for example, Hart (2008), Orr (1994/2004), Sobel (1996), and Stevenson (1987/2007) used the term *environmental education*, but defined it in ways that emphasize both experiences in the local environment and an approach to learning that is based on systems thinking; Stone (2005) described something similar when he referred to *environmental project-based learning*; Lieberman and Hoody (1998) established the concept of *environment as integrating context for learning*; Capra (2007) is known for publicizing the notion of *ecoliteracy*, and also used the term *education for sustainable living*; UNESCO (2005; see also Samuelsson & Kaga, 2008) promotes the concept of *education for sustainability*; and Gruenewald (2003) and Smith (2002, 2007) have used both the terms *place-based* and *critical place-based learning*. Similarly, Janet Dyment and Alan Reid (2005) recommended closer links between the outdoor element of green school grounds and the “socio-political and environmental learning agendas of citizenship and sustainability education” (p.297). In this research project, I use the term *critical place-based learning*, because I appreciate its explicit recognition of the importance of both local place and of a critical orientation; however, despite differences in names, these approaches to teaching, learning and the natural environment share many characteristics: exploring them helps to elucidate the multi-dimensional concept of critical place-based learning that has informed my research project.

**Critical place-based learning**

I explore the literature that addresses the complex meanings of critical place-based pedagogy, using as a heuristic Lucie Sauvé’s framework of environmental education currents.
Sauvé (2005) mapped out a framework that represents many of the epistemological currents in environmental education. This framework is useful for organizing the existing work that relates to critical place-based pedagogy. Rather than being mutually exclusive, Sauvé emphasized that these currents often overlap each other. Strongly rooted in what Sauvé calls the bioregionalist current, critical place-based education represents a pedagogy “aimed at developing a privileged relationship with the local or regional environment and a sense of belonging to it, as well as stimulating a commitment to valorizing this bioregion, for example through eco-development community projects” (Sauvé, 2005, p. 22). In practice, a bioregionalist approach means that “it is not the formal curriculum which determines the environmental education project, but rather the environmental education pedagogical project which gives contextual meaning to the formal curriculum and enriches it” (Sauvé, 2005, p. 22).

Sauvé’s (2005) framework is a useful way of understanding the distinct yet varied purposes and practices of critical place-based pedagogy, and to understand how it differs from more conventional approaches to environmental education. While its roots can be seen in the bioregionalist current, a number of other currents described by Sauvé have also informed critical place-based pedagogy; I will refer to the eco-education current, the naturalist current, the praxic current, and the socially critical current (Sauvé, 2005).

Sauvé’s (2005) eco-education current addresses the educational purposes of environmental learning, focusing on human relationships with the world, with an emphasis on what the environment means for human learning and well-being. She refers to “leveraging our relationship with the environment to further personal development as the basis of meaningful and responsible action” (Sauvé, 2005, p. 28).
Michael K. Stone’s (2005) discussion of the principles of environmental project learning reflects the thinking of the eco-education current. Stone described STRAW (Students and Teachers Restoring a Watershed), a school and community project in California that has developed since 1992 to inspire and integrate classroom learning directed towards understanding and taking part in restoring a local creek. He identified five guiding principles of the project:

- curriculum structured around the knowledge and skills necessary to complete a meaningful and complex “real-world” project, often in service to the local social and environmental community;
- a high degree of student initiative, leadership, and participation in defining problems and in selecting and managing projects to address them;
- learning in which results are not predetermined or fully predictable;
- teachers as resources, fellow learners, and problem solvers rather than as dispensers of knowledge;
- attention to skills such as setting goals and priorities, managing time, problem solving, and working with others. (Stone, 2005, p. 162)

These principles present learning as a process that fosters the development of skills and knowledge that contribute to the development of a whole person—social, emotional, academic, and ecological. Gregory Smith (2007) also emphasized the importance of these affective and action-oriented skills: “in classrooms or schools where place-based education is well-established, inquiry into local concerns and problem-solving shape teaching and learning more than a standardised curriculum, and teachers and students function more as collaborative team members” (p. 190).
These examples represent the sense that there is something innate about experiences in nature that are beneficial to children’s social and cognitive development (e.g., Louv, 2007), and increasingly research has supported this notion. Reggio Emilia-inspired emergent curriculum, which I will discuss further in the next section, recognizes the capacity of the environment—both the natural environment and the carefully structured classroom environment—to shape learning experiences (Edwards, Gandini & Forman, 1993; Wien, 2008). Further, the kind of play that occurs in green spaces tends to be cognitive and creative play that promotes oral language development, creativity, problem-solving and cooperation (Louv, 2007; Faber Taylor & Kuo, 2006; Malone & Tranter, 2003). Andrea Faber Taylor and Frances Kuo (2006) have conducted a series of projects aimed at measuring and understanding the relationship between nature experiences and the well-being of children and adults. They found that time spent in green spaces resulted in benefits for children’s self-esteem, sense of self, and ability to pay attention and concentrate. In particular, Kuo and Faber Taylor (2004) found that children diagnosed with Attention Deficit/Hyperactivity Disorder experienced a significant improvement in their ability to concentrate after they had spent time outdoors in (non-paved) green spaces. Yet they also noted that it is difficult to separate the impact of the natural environment itself from the impact of the hands-on learning that often happens there (Faber Taylor & Kuo, 2006).

Sauvé’s eco-education current refers to the educational benefits of taking action in the environment. It is also expressed by Capra (2007) in his discussion of a school food garden project: “engagement with projects in which their actions have consequences generates in students a strong motivation and emotional connection. Instead of presenting predetermined, decontextualized information, we encourage critical thinking, questioning, and experimentation” (p. 18; see also Louv, 2008; Orr, 1994/2004; Stone, 2005).
Informed by the eco-education current, critical place-based learning is a call for education to be grounded in children’s familiar environments and experiences. This emphasis responds to concerns expressed in 2007 by Robert Stevenson about the separation between school and life, and by John Dewey, over a hundred years earlier:

That is the isolation of the school—its isolation from life. When the child gets into the schoolroom he has to put out of his mind a large part of the ideas, interests, and activities that predominate in his home and neighbourhood. So the school, being unable to utilize this everyday experience, sets painfully to work, on another tack and by a variety of means, to arouse in the child an interest in school studies. (Dewey, 1899/1967, p. 75)

Critical place-based pedagogy’s attention to local place, whether natural or constructed, (Gruenewald, 2003) as the basis for curriculum aims to awaken and respond to children’s natural, experience-based interests.

A growing number of small-scale qualitative studies have shown benefits for children’s engagement in school, social skills and academic development through critical place-based approaches, around the world in a variety of settings. These include Stone’s (2005) description of the STRAW project in California; Murphy’s (2003) and Stone’s (2007) description of the Edible Schoolyard school food garden at a California school; Smith’s (2007) work in inner-city Boston and in rural Hawaii; Mfum-Mensah’s (2009) work in marginalized northern Ghana; Nimmo and Hallett’s (2008) research on the Reggio-inspired garden-based preschool in New Hampshire and Harrison’s (2008) work in an urban Toronto school engaged in school ground gardening. There are only a handful of large-scale quantitative studies that aim to measure the educational impacts of critical place-based approaches to learning. For
example, Gerald Lieberman and Linda Hoody (1998) of the State Education and Environment Roundtable (SEER) conducted a ten year study of 150 schools in the United States that had successful outdoor education programmes. This project led them to identify and promote the concept of environment as an integrating context for learning (EIC). The significant outcomes of EIC schools include improved academic results and an increase in student engagement and motivation, and pride and ownership in their work, as well as consistent improvement in attendance and behaviour (Lieberman & Hoody, 1998). In comparison to conventional schools, children performed better on standardized tests of mathematics, language, science and social studies at all grade levels (Lieberman & Hoody 1998). A study of California schools, also by SEER (2005), showed similar strong benefits academically and in terms of student engagement, as did an independent study of Washington schools by Bartosh (2003). The eco-educational current and its link to critical place-based learning are reflected in one of the three goals of the Ontario policy framework: to “increase student engagement by fostering active participation in environmental projects and building links between schools and communities” (Ontario MoE, 2009, p. 14).

Within the eco-education current, there is a recognition that children of different ages have different relationships with the environment and with nature, and that these differences are important in developing developmentally appropriate environmental educational practices (Sauvé, 2005, p. 29; Sobel, 1996). Based on extensive work with children from age 4 to mid-teens—interviewing, map-making, and exploring natural areas, David Sobel (1996) proposed objectives for environmental education at different stages of development. According to Sobel, in early childhood (up to age 7), the objective of environmental education should be to foster empathy and a sense of connectedness between the child and the natural world. In middle
childhood (ages 8 to 11), the objective is to explore the child’s significant world—which expands as children grow, from the home and school to the neighbourhood, town/city and region—and come to know one’s place. In adolescence (12 and beyond), social action is the objective; children should begin to deal with environmental problems, but that these should be “local problems where children can make a real difference” (Sobel, 1996, p. 28). Other authors have suggested that these borders should be more blurred, for example that young children are capable of social action and should be given opportunities to take action, as long as it is grounded in their own experiences and understandings (e.g., Lewin-Benham, 2006; Pedretti, 1997; Samuellson & Kaga, 2008).

Related to and intertwined with the eco-education current are Sauvé’s (2005) naturalist and praxic currents. These two currents can also be seen in the Ontario Ministry of Education’s vision of environmental education. In the Ontario Ministry of Education (MoE) (2007) background document on environmental education, *Shaping our schools, shaping our future*, and in the Toronto District School Board’s (TDSB) (2009) *Ecoschools Certification Toolkit*, specific attention is given to learning *in, about, and for* nature and the environment.

As described by Sauvé (2005), the naturalist current centres around the intrinsic value of nature, and on developing human relationships with nature through a range of approaches, including cognitive, experiential, affective, spiritual and artistic (Sauvé, 2005, p. 13). Michael Bonnett (2007) emphasized the importance of learning *in* nature. He advocated for fostering *knowledge by acquaintance* with nature, that engages fully all the senses in relating to nature and developing an affinity with nature.

According to *Shaping our schools, shaping our future* (Ontario MoE, 2007), the notion of learning *about* the natural environment goes further than content knowledge to include the
perspective with which children approach the natural environment and their place in it. Bonnett (2007) wrote that “environmental education in particular, and education in general, should have at their heart the ambition to bring a range of searching questions concerning nature to the attention of learners” (p. 709). Thus, the concept of systems thinking can be an important part of a critical place-based approach (Ontario MoE, 2007; TDSB, 2009; Capra, 2007). According to Capra, “understanding the principles of ecology requires a new way of seeing the world and of thinking—in terms of relationships, connectedness, and context—that goes against the grain of traditional Western science and education” (2005, p. 20). According to Capra, systems thinking differs from much of conventional school thinking in its emphases on the whole rather than parts; relationships rather than objects; contextual knowledge rather than objective knowledge; quality rather than quantity; process rather than structure; and patterns rather than relationships (Capra, 2005, pp. 20-21; 2007, pp. 12-13). The *Ecoschools Certification Toolkit* (TDSB, 2009) contains a number of mapping activities aimed at developing children’s capacity to use systems thinking across curriculum areas. These values are apparent in another goal of the Ontario Ministry of Education’s (2009) policy framework—that “by the end of grade 12, students will acquire knowledge, skills, and perspectives that foster understanding of their fundamental connections to each other, to the world around them, and to all living things” (p. 11).

The notion of learning *for* the environment speaks to the capacity of critical place-based education to help children develop the skills and orientation to take action toward environmentally and socially sustainable lifestyles and decisions. It reflects Sauvé’s praxic current that emphasizes “learning *in* action, *by* action, and *for* the ongoing improvement of action” (Sauvé, 2005, p. 22). It also is connected to the idea expressed in the discussion of the eco-education current that children learn more effectively when they are deeply engaged. The
environment provides a context for the development of the knowledge and skills required for taking action for socio-environmental change. Further, the praxic current reflects the notion that is common to many indigenous cultures that learning is a process of *coming to know* (Cajete, 1999) rather than a body of knowledge. For example, Sutherland and Henning (2009) in their discussion of place-based science learning in First Nations communities in Canada wrote that “the process through which humans develop understandings of the interrelationships of humans and nature is as important as the knowledge itself” (p. 176).

A further current described by Sauvé (2005), that relates to critical place-based education is the socially critical current. This current “promotes analysis of the social dynamics underpinning environmental realities and problems: analysis of intents, positions, arguments, explicit and implicit values, and the decisions and actions of the various protagonists in a given situation.” (Sauvé, 2005, p. 23).

Although examples of critical place-based learning have existed for many years, Gruenewald (2003) first used the term and argued for the need to make explicit the relationship between bioregionalist and socially critical approaches to environmental education. He wrote that “the ecological challenge to critical pedagogy is to expand its socio-cultural analyses and agendas for transformation to include an examination of the interactions between cultures and ecosystems” (Gruenewald, 2003, p. 5) The socially critical current attends to social justice issues and the emancipation of marginalized peoples (Gruenewald, 2003; Smith, 2007), but at the same time takes a critical lens to our attitudes towards the environment—in this way it is linked to the call for systems thinking described above. The need for a critical approach is underlined by Gruenewald’s (2003) assertion that “an ecological crisis necessitates the transformation of education and a corresponding alignment of cultural patterns with the sustaining capacities of
natural systems” (pp. 9-10). However, Gruenewald (2008) cautioned that not all place-based education is critical place-based education; often, the local environment is foregrounded at the expense of the more politically charged cultural environment. This caution speaks to a dilemma for the educators of young children in particular, and will be discussed in the next section.

The literature above demonstrates the complex strands that come together in critical place-based pedagogy, and the ways in which it might be conceived and enacted. In the following section I explore the literature that attends specifically to critical place-based learning with young children.

**Critical Place-Based Pedagogy with Young Children**

In this section, I explore both the literature on critical place-based education and the literature on early years learning, and consider how they intersect. I include a subsection on Reggio Emilia-inspired emergent curriculum because both Doris and I were interested in using emergent curriculum as a vehicle for critical place-based pedagogy. The name critical place-based learning has most often been associated with work with older children—from the late elementary years up (e.g., Smith, 2007). Yet, environmental or sustainability learning is most effective if it is part of a developmental approach, that builds skills and values over the years, recognizing the importance of developmentally appropriate learning at each stage (Chawla, 2007; Sobel, 1995). I will explore the theory and practice of critical place-based learning as it applies to the early years (kindergarten and/or preschool, approximately ages 4-6).

Sobel (1996) emphasised the importance for young children of fostering a sense of wonder and empathy through experiences in nature; this emphasis also reflects the naturalist and bioregionalist currents (Sauvé, 2005). In the literature on early childhood learning, there is a small but growing set of examples of the kind of learning that has as its goal the fostering of a
sense of wonder towards nature. Nimmo and Hallett (2008) described a large garden-centred school in New Hampshire in which young children work and play within a food garden, observing and taking part in the wonders of growing food. Sobel’s description of four year olds learning about birds through drama, art and observation is another example of how this sense of wonder might be fostered (Sobel, 1996).

All of this learning occurs in the school grounds or the local area. The importance of the local context in particular for young children, emphasized by Sobel (1996) was also emphasized by Ingrid Samuelsson and Yoshie Kaga (2008), in the Introduction to UNESCO’s publication, *The contribution of early childhood education to a sustainable society:*

> Early education for sustainable development cannot be dealt with only in abstraction – it needs to be rooted in the local concrete reality of young children if it is to have real meaning and impact. . . . real-life questions faced by children, their families and communities, and arising from specific local contexts, are central to shaping what learning for sustainable development should look like. This is where participation by children, families and communities becomes essential. (Samuelsson & Kaga, 2008, p. 13)

This call for a locally relevant context to learning exemplifies the bioregionalist current of environmental education, identified by Sauvé (2005), and it also highlights the particular need for learning for young children to be rooted in what they know best – their family and community. Therefore teachers and schools need to strive to support and strengthen the connections between the school and the family. Further, Samuelsson and Kaga (2008) emphasized that, because early childhood education:
is about laying a sound intellectual, psychological, emotional, social and physical foundation for development and lifelong learning, it has an enormous potential in fostering values, attitudes, skills and behaviours that support sustainable development – e.g. wise use of resources, cultural diversity, gender equality and democracy. (p. 12)

Samuelsson and Kaga (2008) recommended explicit teaching and learning about environmental and sustainability issues:

It should be broader than simply taking children outdoors to discover the beauty of nature and speaking about the natural environment. It must include opportunities for children to engage in intellectual dialogue regarding sustainability, and in concrete actions in favour of the environment. (p. 13)

Julie M. Davis’ (2008) description of an Australian early learning child care centre, also in the UNESCO publication, is provided as an example of a setting where children are engaged in gardening, recycling and water conservation. This learning is contextual and allows children to take immediate action; it occurs within a programme that teaches children explicitly about the larger environmental problems, such as water pollution (Davis, 2008). Ann Lewin-Benham (2006) described a kindergarten class’ environmental learning journey through emergent curriculum, from classroom goldfish to recognition and exploration of the interconnectedness of life, and issues of water pollution and water conservation.

These more explicit approaches to environmental education described by Samuellson and Kaga (2008), Davies (2008) and Lewin-Benham (2006), exist along a continuum with the approach to early years learning described by David Sobel (1996), and by Wenche Aasen, Liv Grindheim and Jane Waters (2009). Their work implies that just as the foundation for
environmental learning rests in developing a sense of empathy with nature, a socially critical lens may emerge from empathetic relationships with peers and teachers (Aasen, Grindheim & Waters, 2009). Aasen, Grindheim and Waters (2009), in their research on outdoor kindergartens in Norway, argued that open-ended outdoor play is an ideal setting for the development of democratic attitudes and a sense of empathy towards each other that form a foundation for a socially critical perspective (Aasen, Grindheim & Waters, 2009). This view is also expressed by Nimmo and Hallett (2008), in their discussion of gardening as a context for young children to share their knowledge and negotiate and renegotiate roles in relationships. The particularly open-ended, imaginative cognitive play that tends to be promoted in green spaces is supportive of the renegotiation of relationships, and more flexible status structures and friendships (Aasen, Grindheim & Waters, 2009; Nimmo & Hallett, 2008). In addition, outdoor learning, as a significant element of place-based learning, may support the inclusion of children with special needs or who have difficulties building relationships with others in the indoor classroom, in part because there is a vast range of different activities to engage in (Nimmo & Hallett, 2008, p. 3; Powers, 2004). At the same time, however, Aasen, Grindheim and Waters (2009) described the role of the teacher in using green space to model and foster such relationships – that is, even if the teaching is not explicit, the teacher’s intention is, and this shapes the opportunities he/she provides and how he/she interacts with children – simply opening the door to the great outdoors may not be enough. Much research (e.g., Aasen, Grindheim & Waters, 2009; Nimmo & Hallett, 2008) suggests that young children already have an orientation towards each other and towards the natural world: it is the responsibility of schools to strengthen and sustain this orientation.

In essence, therefore, there exists a continuum of views and approaches to critical place-based pedagogy for young children. While Samuelsson and Kaga (2008) argued the need for
explicit teaching and questioning of perspectives, Aasen, Grindheim and Waters (2009), Nimmo and Haslett (2008) and Sobel (1996), argued that critical place-based learning need not be explicitly critical—of either environmental or social issues—in order to be effective. Instead, children develop an affinity and commitment towards the ideals of social equality and inclusion and care for the environment and each other, simply by being consistently exposed to and involved in applying these values—in their most rich and complete and practical iteration—from an early age. Throughout the literature on early years’ education, and again in the literature on emergent curriculum, researchers and educators are negotiating their position on this continuum.

An important focus in early years education, and particularly in Ontario kindergartens, is helping young children develop early literacy. The connections between literacy, literature and nature are receiving increasing attention, even in the educational mainstream. A place for wonder, a recent book by Georgia Heard and Jennifer McDonough (2009) taps into the potential to enhance both the development of young children’s writing skills and their sense of wonder about the natural world. Heard and McDonough described how they established opportunities in a kindergarten class for wondering and pondering about questions in nature. They found that children were much more engaged and interested in exploring, talking about, reading about and writing about topics that were related to nature. Looking closely at nature became an entry point for helping beginning writers “to independently begin to include more detail in their writing” (Heard & McDonough, 2009, p. 41). The opportunity to write about their own theories and ideas provides great motivation for young writers.

The relationship between critical place-based learning in the early years and literature is reciprocal. Well-chosen books, both fiction and non-fiction (MacMillan, 2008; Sobel, 1996), can be used to link outdoor learning to the indoor classroom, and to enrich this learning. Stories can
provide opportunities for discussions that challenge children’s thinking. Explicit teaching that focuses on comprehension skills such as making connections, inferring, asking questions, synthesizing and comparing, can provide a grounding that will support children to think critically (Heard & McDonough, 2009; Miller, 2002).

**Reggio Emilia – inspired emergent curriculum**

Many of the goals expressed in the bioregionalist, naturalist, praxic, socially critical and eco-educational currents of environmental education are echoed in the literature on emergent curriculum (e.g., Davis, 2008; Edwards, Gandini & Forman, 1993; Lewin-Benham, 2006; Wien, 2008). Carol Anne Wien (2008), in her book detailing emergent curriculum practices in schools in the Toronto area, described emergent curriculum as based on three expansive values: relationality, reciprocity, and collaboration. Her description of these values reflects an interpretation of emergent curriculum that is deeply connected to teaching and learning for environmental literacy and sustainable living, and ultimately to the systems thinking principles described by Capra (2007). The concept of relationality has two elements: “relationship building among people, but equally so it includes the notion of supporting children and teachers in grasping the interconnectiveness of all living things and our responsibility to sustain life” (Wien, 2008, p. 7). Reciprocity reflects not only an image of mutual exchange between children and teachers, but also “a sharing of power with living things” (Wien, 2008, p. 7). Finally, collaboration refers to an emphasis on “a more collective rather than individualized vision of life together, and a strong sense of participating in a social democracy” (Wien, 2008, p. 7). Similarly, Ann Lewin-Benham (2006) referred to the ways in which emergent curriculum and systems thinking merge in purpose and process, when she wrote that “the interconnectedness of everything on our planet dovetails with a teaching approach based on collaboration and a theory
of learning based on relationships” (p. 7). These values reflect a connection between emergent curriculum and the concepts of systems thinking that emphasizes connectedness, relationships and contextual knowledge rather than objective knowledge.

Much work in emergent curriculum in the early years is inspired by the preschools of Reggio Emilia, Italy (Edward, Gandini & Forman, 1993). In the literature on Reggio Emilia-inspired emergent curriculum, much attention is given to the role of the environment—or more generally, of space, both natural and structured—in establishing the implicit curriculum and providing opportunities for different kinds of play and for social interaction (Edwards, Gandini & Forman, 1993; Lewin-Benham, 2006; Wien, 2008). The Reggio Emilia approach is deeply embedded in place, in the sense of the socio-cultural place of the region of Italy in which it occurs; schools are constructed, set up and designed to reflect cultural values; the roles of parents are emphasized, for example in intensive involvement in school steering committees, involvement in curriculum planning, visits to children’s homes and parents’ workplaces (Edwards, Gandini & Forman, 1993). Topics for investigation are selected from children’s experiences and areas of interests. This is an intentional decision, because:

when the topic of a project is very familiar to the children, they can contribute to the project from their own knowledge, and suggest questions to ask and lines of investigations to pursue; the children themselves can take leadership in planning, can assume responsibilities for specific observations and for information and artifacts to collect….on the other hand, if the topic of a project is exotic and outside of the children’s direct experience they are dependent on teachers for most of the questions, ideas, information, thinking, and planning. (Katz, 1993, p. 23)
This embeddedness in children’s experience echoes Dewey’s (1899/1967) concern about the connection between school and life experience, but also goes further to explicitly link the content and process of curriculum as impacting on children’s academic and action-oriented skills. This link is achieved through what Loris Malaguzzi (1993), who is credited with founding the Reggio Emilia approach, referred to as “an education based on relationship and participation” (p. 59) bringing together the voices of children and teachers. Rebecca New (1993) suggested that Reggio Emilia curriculum “might be described as both child-centred and (often) teacher-directed” (p. 221). Emergent curriculum relies on teachers’ complex and intricate dialogues with children, in interaction with the indoor and/or outdoor environment, to draw out and expand on their interests, ideas and theories, and scaffold children to go more deeply into projects and investigations than they would be able to do on their own (Jones & Nimmo, 1994; Malaguzzi, 1993). According to Malaguzzi, “the central act of adults, therefore, is to activate, especially indirectly, the meaning-making competencies of children as a basis of all learning” (p. 75).

Nimmo and Hallett (2008), in their discussion of a Reggio-inspired garden-centred school and child-care centre in New Hampshire, emphasized the importance of the garden as a setting for free learning and play, learning through the senses, and risk-taking. At the same time, they stressed the importance of a flexible approach that recognizes that children may step on, squish or otherwise damage plants in their ongoing process of learning about them and how to care for them. As a type of “eco-development community project” (Sauvé, 2005, p. 22), gardening offers an opportunity for taking action in the local natural environment that is representative of the bioregionalist current, as well as of the praxic current (Sauvé, 2005).
Scheinfeld, Haigh and Scheinfeld (2008) focus on the image of the child as “capable, interested, rich in ideas, wanting to grow, and wanting to communicate with peers and adults” (p.3), as a guiding force for the teacher:

The image of the child is an integral part of the teacher-child relationship, in which the teacher’s aim is to empower children to explore the world and create meaning. The teacher’s motive is to validate the children’s curiosity, challenge their thinking, and facilitate their pleasure in connecting with the world and constructing understandings. Gradually, because this image of the child is in the teacher’s mind, heart, and actions, the children take on this image of themselves and grow as active inquirers and constructors of personally meaningful information. (p.3)

According to Scheinfeld, Haigh and Scheinfeld (2008), the process of emergent curriculum embodies the major goal of developing a child’s sense of agency. They define a sense of agency as:

Experiencing oneself as an active, self-directed agent who can, individually and in collaboration with others, formulate personally meaningful learning goals, figure out strategies to achieve them, engage the world to pursue them, construct understandings, and communicate the newly developed understandings to others. A sense of agency combines a sense of efficacy and personhood. It means: I stand in relation to others with my own motives and ideas and I have the competence to pursue them. (p.60)

The notion of agency is similar to that of self-regulation described by Richard Shanker (2010). Agency and self-regulation resonate with the action orientation identified by
Gruenewald (2003, 2007) and others who write from the perspective of environmental education.

According to Scheinfeld, Haigh and Scheinfeld (2008), a number of other specific developmental goals are connected to this sense of agency, for example:

- the ability to have an idea and act on it;
- the ability to engage in focused, sustained learning;
- observation skills;
- reasoning skills;
- the ability to make connections and integrate them into comprehensive understandings;
- representational skills;
- and the ability to collaborate and communicate with others. (p.60)

Carlina Rinaldi’s (1993) description of the planning process in Reggio Emilia, Italy, exemplifies the practice of emergent curriculum. In Reggio Emilia, planning is

A method of work in which the teachers lay out general educational objectives, but do not formulate the specific goals for each project or each activity in advance. They formulate instead hypotheses of what could happen on the basis of their knowledge of the children and of previous experiences. Along with these hypotheses they formulate objectives that are flexible and adapted to the needs and interests of the children. These interests and needs include those expressed by children at any time during the project as well as those the teachers infer and bring out as the work proceeds. This . . . type of planning we call “emergent curriculum.” (Rinaldi, 1993, p. 102)

Scheinfeld, Haigh and Scheinfeld (2008) described emergent curriculum as concerned with process, in contrast with the focus on content of much of traditional schooling:

The difference is between a predominantly content emphasis in traditional methods and a predominantly process emphasis in the Reggio-inspired methods.
… While the predominant emphasis in Reggio-inspired methods is on process, there is still a concern with content. However, the content of learning is realized through the Reggio process described above. (Scheinfeld, Haigh & Scheinfeld, 2008, p. 131)

A further element in emergent curriculum approaches inspired by Reggio Emilia is the focus on the arts. By encouraging and supporting children to look closely, and to look again and again, and to express themselves through whatever medium they choose—whether drawing, sculpture, music or drama, Reggio Emilia schools have helped very young children to develop their skills in visual representation (Edwards, Gandini & Forman, 1993). This focus on the arts is important because it provides another voice for children to express themselves and another vehicle for them to develop their ideas. In fact, Reggio Emilia is often synonymous with the concept of the *hundred languages of children* (Edwards, Gandini & Forman, 1993). “Young children are encouraged to explore their environment and express themselves through all of their natural ‘languages’ or modes of expression, including words, movement, drawing, painting, building, sculpture, shadow play, collage, dramatic play, and music” (Edwards, Gandini & Forman, 1993, p. 3). Sobel (1996) has also recognized the arts as a means for young children to deepen their learning and express their ideas about nature.

Despite the many intrinsic links between critical place-based learning and an emergent curriculum, apart from a few projects focussed on environmental learning, such as the goldfish project by Lewin-Benham (2006) discussed earlier, which was largely located indoors, or a project that integrated learning about measurement with the maintenance of a school garden described by Wien (2008), attention in Reggio Emilia-inspired classrooms has mostly been on the indoor classroom environment. One exception is the garden school described by Nimmo and
Hallett (2008), which is a strong example of the intersection of gardening, emergent curriculum and place-based learning with very young children. There is still a need for more explicit and intentional research attention to the emergent curriculum approach as a vehicle for critical place-based learning—with attention to both local place, and the critical lens.

**Teacher Professional Development through Collaboration**

In this section, I explore the literature on the role of the teacher in approaches to teaching and learning that support critical place-based learning, including Reggio Emilia-inspired emergent curriculum. I consider what qualities of teacher professional development support teachers in adopting and sustaining critical place-based approaches to teaching and learning. Because my project was initiated as a collaboration between teacher and researcher, I attend to the research on collaboration for teacher professional development. Further, since documentation emerged as an important element in the project, I consider the research on documentation as a tool of teacher professional development.

**The role of the teacher in critical place-based pedagogy**

Robert Stevenson (1987/2007) framed schooling as contradictory to the purposes and practices of environmental education: “schools were not intended to develop critical thinkers, social inquirers and problem solvers, or active participants in environmental and political (or even educational) decision making. Put simply, their intended function was not to promote social change or reconstruction” (p. 144). Thus, a critical place-based approach that is inherently framed in social change, reconstruction, and transformation, both requires and inspires a professional role for teachers that is critical and transformative.

According to Giroux (1988) a view of teachers as transformative intellectuals both “provides a theoretical basis for examining teacher work as a form of intellectual labour, as
opposed to defining it in purely instrumental or technical terms” (p. 125) and “helps to make
clear the role teachers play in producing and legitimating various political, economic and social
interests through the pedagogies they endorse and utilize” (Giroux, 1988, p. 125). Giroux’s view
of teachers’ roles is both implicitly and explicitly political. Similarly, Bishop et al. (2000)
emphasized the ways that teachers’ epistemologies influence and guide their teaching, when they
wrote that “teachers will employ pedagogical approaches which are related to their knowledge
and beliefs about teaching, and that it is likely that they will try to enact their theories of teaching
and learning in their classroom practice” (Bishop et al., 2000, p. 275). According to Giroux
(1988),

Teachers must take active responsibility for raising serious questions about what they
teach, how they are to teach, and what the larger goals are for which they are
striving. This means that they must take a responsible role in shaping the purposes
and conditions of schooling. [emphasis added] (p. 126)

With particular respect to environmental education, Orr (1994/2004) has argued that all
education is environmental education, in that it represents attitudes and beliefs about the value of
nature, the environment and our relationship to it—some of these attitudes represent sustainable
living and some of them represent degradation and the subjugation of the environment to an
economic motive. Thus, “schools are not neutral sites, and teachers cannot assume the posture of
being neutral either” (Giroux, 1988, p. 127).

Michael Fullan (2003) linked teacher efficacy to cultural notions of professionalism in his
discussion of the need for teachers to have and exercise “informed professional judgment” (p. 6),
that is to have both rich knowledge of curriculum and pedagogy, and the opportunity and
capacity to exercise professional judgment rather than to be restricted by external prescription (Fullan, 2003).

In their discussion of teacher professional development, David Slavit and Tamara Holmlund Nelson (2008) referred to the need for teachers to hold an inquiry stance. “Inquiry as a way of being incorporates the notion of inquiry into the very essence of teachers as professional educators, often manifested by an inherent desire to question and better understand” (Slavit & Nelson, 2009, p. 8).

These views reflect an intersection of teachers’ ongoing practice with their professional development. Similarly, within Reggio Emilia-inspired emergent curriculum approaches, teacher professional development is constantly intertwined with the process of teaching and learning. This intertwining can be expressed in the notion central to emergent curriculum approaches, of teacher as researcher (Jones & Nimmo, 1994; Malaguzzi, 1993; Wien, 2008). Wien (2008) suggested that, guided by an inquiry stance, a teacher of emergent curriculum is a researcher, in the sense that “research, or looking again, is also a kind of listening. . . . Listening starts with the adult trying to grasp the children’s perspective and build from there, rather than starting with curriculum content” (Wien, 2008, p. 14). This implies the need for teachers to be—or become—comfortable with uncertainty, as it requires “relinquishing control of the movement of thought, opening up to the fact they [do] not know what the children would say” (Wien, 2008, p. 153).

This research or inquiry orientation is at the core of emergent curriculum teaching: “the fundamental goal for teachers’ professional development is teachers growing into a new relationship with children based on listening, observing, valuing, and responding to children’s expression of interests, feelings, and ideas” (Scheinfeld, Haigh & Scheinfeld, 2008, p.129; see also Wien, 2008; Malaguzzi, 1993). Rebecca New (1993), also discussed the importance of
teachers seeing themselves as learners and researchers: “the view, in Reggio Emilia, of adults as learners enables teachers to acknowledge their uncertainties as they construct for themselves an understanding of children’s development” (New, 1993, p. 222).

Likewise, Loris Malaguzzi (1993) emphasized inquiry and the importance of teachers’ bringing a constantly constructivist, uncertain and questioning approach to their work:

Teachers must possess a habit of questioning their certainties, a growth of sensitivity, awareness and availability, the assuming of a critical style of research and continually updated knowledge of children, an enriched evaluation of parental roles, and skills to talk, listen, and learn from parents. . . . Responding to all of these demands requires from teachers a constant questioning of their teaching. (p. 63)

**Documentation**

In Reggio Emilia-inspired classrooms, the core tool of the teacher as researcher or inquirer is pedagogical documentation. Documentation refers to the organized and systematic collection of data that represents classroom experiences – most often photographs, excerpts or transcripts of audio- or video-recordings of classroom conversations, related samples of children’s work, notes from observations of children at work and play, and teacher’s reflections (Edwards, Gandini & Forman, 1993; Lewin-Benham, 2006; Malaguzzi, 1993; Wien, 2008).

Documentation is an integral part of *listening* and *observing*. It carries listening and observing forward to enable in-depth *reflection*. It holds observations still in order to interpret children’s interests, feelings, and ideas. It provides reference points that can be revisited and reflected on by more than one person, allowing co-construction of children’s meanings to emerge. (Scheinfeld, Haigh & Scheinfeld, 2008, p. 136-137)
Documentation practices are increasingly gaining recognition beyond settings that formally identify themselves as following Reggio Emilia-inspired emergent curriculum practices: for example, the journal *Theory into Practice* recently released a special issue focussing on documentation. In an article in this issue, Beverly Falk and Linda Darling-Hammond (2010) wrote “documentation is an important form of teacher research that sharpens and focuses teachers’ attention on how and what their students are learning, as well as on their own role as teachers in the learning experience” (Falk & Darling-Hammond, 2010, p. 75).

Dennis Thiessen (1992) described practices very similar to pedagogical documentation in his discussion of classroom-based teacher development, which he described as “an orientation which both reconceptualises how teachers improve their professional effectiveness in the work place and builds on the relationships that matter most to teachers in their development: their relationships with their students” (p.86; see also Wien, 2008).

Falk and Darling Hammond (2010) made the link between documentation and teaching for democracy:

Documentation is not only part of an approach to effective teaching, it is part of a broader view of education that sees learning as a negotiated experience between learners and their environments. Teachers who hold this view provide active learning opportunities, using what they learn from observing learners’ actions and their work to create curricula that extends learners’ prior experiences and understandings. (Falk & Darling-Hammond, 2010, p. 74)

Falk and Darling-Hammond (2010) linked the kind of learning that documentation supports to a broader view of the purpose of education that is akin to that expressed by Giroux (1998) regarding teachers’ professional development as helping teachers to be transformative
intellectuals, and that expressed by critical place-based theorists like Gruenewald (2003) and Stevenson (2008).

In the same issue of *Theory into Practice*, educators from Reggio Emilia, Italy, connected documentation to the purposes and practices of critical pedagogy:

It is the postulation that children have many ways of acting in the world and that teachers can listen to these many languages and help make visible the ways in which children narrate these realities. Without nurturing plurality, we risk sliding towards totalitarianism and losing individuality. Too many pedagogical approaches are built upon a concept of mass transmission, which undermines plurality. So it is crucial to create social contexts through which the uniqueness and unrepeatability of the individual can appear. (Carlina Rinaldi, in interview with Turner & Gray Wilson, 2010, p. 9)

Like Fullan (2003), Falk and Darling-Hammond (2010) linked documentation to teachers’ own sense of agency:

The use of documentary evidence to guide decisions about students, curriculum, and teaching symbolizes a move away from treating teachers as passive recipients of educational dictates toward valuing them as professionals who are active and respected participants in framing judgements and questions about teaching and learning. (p. 76)

Yet, learning to create and use documentation effectively is a challenging professional development task in itself:

Documentation is not about the reorganization and arranging of material with the aim of assembling a descriptive linear story. Rather, documentation is a
narrative pathway with arguments that seek to make sense of the events and processes…. Documentation is not about finding answers, but generating questions. It is a bit of a paradox because we do come to know things about the children and what we might do next, but this knowledge should not lead us to closure. Rather, it sparks more wonder and inquiry about the children and the teaching that follows. (Filippini in interview with Turner & Gray Wilson, 2010, pp. 8-9)

There is not one way to produce documentation: what is important is the perspective from which one approaches documentation, not as a technical tool, but as an attitude of open-mindedness that allows teachers to really listen to children, observe them, and use these observations to guide teaching and learning in a constant process of reflection (Turner & Gray Wilson, 2010, p.6).

**Teacher collaboration**

In their discussion of teacher change towards adopting environmental literacy approaches, Bishop et al (2000), wrote that “what is clear is that ‘theory’ to become ‘practice’. . . , more than the simple provision of new teaching materials may be required” (p. 282). Providing evidence for the complexity of educational change a 2005 study by Janet Dyment of Toronto schools with greened school grounds (school grounds that had green spaces, seating areas and/or gardens) showed that only ten percent of teachers used the school grounds as part of their teaching and learning. According to Dyment (2005), teachers felt that they lacked the confidence and skills to teach outdoors. Further, Dyment and Reid (2005) noted that the image of teaching and learning in Ontario has not been supportive of outdoor, experiential learning. In fact, they observed that the bulk of teaching, learning, and assessment in relation to the curriculum takes
place in the indoor classroom, a pattern that has been reinforced with the ascendance of a culture of inspection, standardisation and accountability since the mid-1990s (Dyment & Reid, 2005, p.295; Stevenson, 2008). Yet, according to Robert Stevenson, disaffection with the standards and accountability reforms provides a context ripe for the growth of place-based education, cautioning, however, “if curriculum space can be found” (Stevenson, 2008, p.354).

According to Paul Hart (2008, p. 201), teachers’ orientation towards nature and the outdoors—like that of other adults—is shaped in childhood, but can be influenced through lifelong experiences.

Thus, teacher experiences, mediated by colleagues and mentors, in the school grounds, may foster further use of the school grounds for teaching and learning.

The success of the emergent curriculum approach in Reggio Emilia, Italy, again speaks to the power of ongoing in-service professional development—and in particular, of collaboration—in supporting transformative teaching. According to New (1993), “through the use of a constructivist framework to guide staff development goals and activities, teachers in Reggio Emilia actively seek out multiple perspectives, exchanging points of view with each other and with parents as well” (p. 222).

Both formal and informal collaboration are an essential part of ongoing teacher planning and practice in Reggio Emilia and in the ideal iteration of emergent curriculum generally (Lewin-Benham, 2006; Wien, 2008). Reggio teachers’ “way of working has the added advantage of the built-in support structures. The teacher is not expected to figure out all by herself what she should be doing. Always she works in collaboration with other adults” (Edwards, 1993, p. 159).

In his discussion of teachers’ orientation to environmental education, Paul Hart (2008) wrote that teacher development depends on teachers’ relationship to the learning community. He
referred to “teaching and learning in relation to participation networks in which [teachers] found themselves as learners, learning ‘through’ social interaction where cognitive dimensions of learning are intimately interconnected and dependent on the society” (Hart, 2008, pp. 201-202)

Such collaboration requires a genuinely open attitude towards teacher learning, around genuine intellectual conflict, that involves both feedback and honest criticism (Edwards, 1993, p. 159). Further, Edwards (1993) described the collaborative process as one which is fully linked to the aim of extending teacher learning:

The point of a discussion is not just to air diverse points of view, but instead to go on until it is clear that everyone has learned something and moved somewhere in his or her thinking. A discussion should go on until a solution or next step becomes apparent; then, tension dissipates and a new shared understanding provides the basis for future joint activity or effort. The discussion can require a certain toughness and perseverance. (pp. 159-160)

Thus, in Reggio Emilia, “a method of extended mutual criticism and self-examination is very much accepted” (Edwards, 1993, p. 160). Slavit and Nelson (2009) also suggested that an inquiry stance allows teachers to participate fully in collaboration:

Unlike instances where teachers either reject or accept at face value ideas from others, an inquiry stance promotes knowledge negotiation (Nelson, 2005) that stimulates the examination of alternate perspectives and the questioning of one’s own knowledge and beliefs in an effort to co-construct meaning. (p. 8)

Hart (2008) emphasized the transformational power of such genuine collaboration:

It is not unreasonable to conjecture that learning occurs where shared knowledge is exchanged interactively as one’s values are exposed, critiqued, and changed within
the relative safety net of collegial relations. Critical stories, those that shake our sense of identity, could even make one feel as if one’s whole identity has been changed. (p. 204)

Wien (2008) wrote of the link between teacher inquiry and children’s inquiry, “if the teacher understands what it is like to have an inquiry and follow it through to provisional answers, then it is possible to cultivate the same stance in children” (p. 153). Thus, ongoing collaborative in-service teacher professional development, critical place-based pedagogy, and emergent curriculum represent parallel processes.

An evaluative study by Amy Powers (2004) of four programmes of school change through place-based pedagogy suggested some important recommendations for organizing teacher professional development. First, teachers and schools benefited from cooperation with external organizations that could provide intensive training and ongoing support and opportunities for teacher collaboration (Powers, 2004; see also Harrison, 2008). Further, as any change process requires teachers to invest time, a whole school approach is more successful than individual teacher approaches to change: the support of the administrator can open up time for meeting, reflecting and planning, as well as potentially staff to support this change (Powers, 2004).

In a short term way, educational researchers may play a role in inspiring and supporting collaboration, and may be a partner in the collaboration (e.g., Bishop et al., 2000; Tal, 2003). Hart (1996) in Bishop et al. (2000) suggested that “researchers should help teachers to develop personally and professionally by helping them to understand what underpins their thoughts and actions” (Hart, 1996, p.66, in Bishop et al., p. 278).
CHAPTER 3: METHODOLOGY

The methodology I used for this project was a qualitative case study. In this chapter, I explore the literature on the qualitative research tradition and case study methodology, and consider the implications for my research. I describe the data collection and data analysis methods I used, the context in which the project was carried out, and I consider the ethical implications of my research.

Qualitative Research

Robert Bogdan and Sari Knopp Biklen (2004) used qualitative research as an umbrella term to refer to research strategies that tend to share a set of characteristics. According to Bogdan and Biklen (2004), qualitative research is naturalistic, descriptive, concerned with process, inductive, and concerned with meaning. I use these characteristics as a framework for understanding qualitative research, with particular attention to the implications for my study. Further, according to Bogdan and Biklen (2004), “in good research, methods are consistent with the logic embodied in the methodology” (p. 31). Thus, I will include throughout this framework a discussion of the implications for data collection methods.

Naturalistic implies that qualitative research takes place in the natural setting of the people or case under study—whether classroom, home, or community (Bogdan & Biklen, 2004). In contrast to much quantitative research, qualitative researchers have a particular concern with context, with the notion that “action can best be understood when it is observed in the setting in which it occurs” (Bogdan & Biklen, 2004, p. 4). Peter Freebody (2004) noted that the conditions under which teachers teach, the children they teach, and the subject matter they teach play a significant role in shaping the lived experiences of teaching and learning; these local conditions are “lived dimensions that are indigenous to each teaching-learning event. In that important
respect, case studies show a strong sense of time and place; they represent a commitment to the overwhelming significance of localized experience” (Freebody, 2004, p. 81). Further, Bogdan and Biklen (2004) noted that “these settings have to be understood in the historical life of the institutions of which they are a part” (p. 4). Thus, the relationship between the classroom, teacher, school, and the policy positions in terms of environmental education expressed by the Toronto District School Board and the Ontario Ministry of Education will impact on our collaboration, and will be relevant to understanding the complexities of the case.

Descriptive denotes that “the data collected take the form of words or pictures rather than numbers” (Bogdan & Bliken, 2004, p. 5). Bogdan and Bliken (2004) emphasized the need to examine “with the assumption that nothing is trivial, that everything has the potential of being a clue that might unlock a more comprehensive understanding of what is being studied” (p. 5). According to Robert Stake (1995), “qualitative research tries to establish an empathetic understanding for the reader, through description, sometimes thick description, conveying to the reader what experience itself would convey” (p. 39). The concept of thick description was developed by Clifford Geertz (1973, as cited in Bogdan & Biklen, 2004) in his work on ethnography to express the notion of layering the multiple meanings of the research participants and researcher. An emergent curriculum approach likewise suggests the unraveling of multiple layers of meaning for children and teachers (Edwards, Gandini & Forman, 1993).

A concern with process in qualitative research contrasts with a concern with outcomes or products in more quantitative approaches (Bogdan & Biklen, 2004). Bogdan and Biklen (2004) suggested that qualitative research is guided by questions such as “how do people negotiate meaning?” (p. 6). Relatedly, according to Stake (1995), “quantitative researchers have pressed for explanation and control; qualitative researchers have pressed for understanding the
complex interrelationships among all that exists” (p. 37). “The function of research is not necessarily to map and conquer the world but to sophisticate the beholding of it” (Stake, 1995, p. 43).

According to Stake (1995), this requires continuous researcher attention and an ongoing interpretive role, which speaks to the notion of qualitative research as inductive.

Qualitative research is *inductive*, in that researchers “do not search out data or evidence to prove or disprove hypotheses they hold before entering the study; rather, the abstractions are built as the particulars that have been gathered are grouped together” (Bogdan & Biklen, 2004, p. 6). Thus “the theory is grounded in the data” (Bogdan and Biklen, 2004, p. 6). Alan Peshkin (2001) described the way in which the research itself shapes and reshapes the direction it will take, in a constant process of refining:

My research direction, my beginning conception of my research changes as a result of getting smarter over time, meaning I have begun to collect data and the data are feedback to me as to what I am capable of learning from the people or the setting that I have brought myself to. My research direction gives me a sense of knowing where I am going but that is not the same as knowing where I am going to end up. (p. 7)

In terms of research design, the principle of inductive research implies that “the qualitative researcher plans to use part of the study to learn what the important questions are. He or she does not assume that enough is known to recognize important concerns before undertaking the research” (Bogdan & Bliken, 2004, p. 6). Piloting the research is one possible way to begin to further develop these important questions before beginning the formal research (Stake, 1995). I worked with Doris from September to January, before the project formally began, essentially
piloting a collaborative approach to critical place-based learning in the kindergarten classroom. This pilot project helped me to refine my research questions and the design of the project, in particular leading to an emphasis on emergent curriculum, as described in more detail in the subsection Setting the Context.

**Meaning** is essential to qualitative research. “Researchers who use this approach are interested in how different people make sense of their lives” (Bogdan & Bliken, 2004, p. 7). In my research, I am interested in both the children’s ongoing experience of critical place-based pedagogy and the teacher’s experience of negotiating this approach into her existing approaches to teaching and learning, as well as the shared experiences of collaboration. As Stake (1995) observed, “ultimately, the interpretations of the researcher are likely to be emphasized more than the interpretations of those people studied, but the qualitative case researcher tries to preserve the multiple realities, the different and even contradictory views of what is happening” (p. 12). Bogdan and Bliken (2004) emphasized the accurate representation of participants’ perspectives; I will explore strategies for triangulation in the discussion on the case study approach below.

These characteristics of the qualitative approach are grounded in the epistemology of the qualitative tradition. According to Stake (1995), “most contemporary qualitative researchers nourish the belief that knowledge is constructed rather than discovered. The world we know is a particularly human construction.” (Stake, 1995, p. 99) Further,

Following a constructivist view of knowledge does not require the researcher to avoid delivering generalizations. But a constructivist view encourages providing readers with good raw material for their own generalizing. The emphasis is on description of things that readers ordinarily pay attention to, particularly places, events, and people,
not only commonplace description but ‘thick description,’ the interpretations of the people most knowledgeable about the case. (Stake, 1995, p. 102)

Curt Dudley-Marling (1996), a literacy educator working with marginalized populations, in his discussion of reductionist research methodologies as a means of limiting our view of reality, made the link between pedagogical approach and research approach. He wrote that “choice of method—reductionist versus constructivist practices, for example—is as political as it is pedagogical, involving decisions about people and the way they live their lives (Dudley-Marling, 1996, pp. 113-114). For me, qualitative research reflects the same constructivist or emergent orientations that are embedded in the pedagogical approaches of emergent curriculum and critical place-based learning, and is founded on many of the systems thinking principles such as contextuality, pattern and interconnectedness that are important to environmental learning. Within the qualitative tradition, I followed a case study methodology; in the next section I consider how the literature on case study methodology informed my research.

Case Study Methodology

According to Freebody (2004), “the goal of a case study, in its most general form, is to put in place an inquiry in which both researchers and educators can reflect upon particular instances of educational practice” (p. 81). Robert K. Yin (1994) described case study as addressing how and why questions. Both Freebody (2004) and Stake (1995) noted that there is considerable latitude and some disagreement on what may constitute a case for study. According to Stake (1995), the case is likely to be purposive, even having a ‘self’. The case is an integrated system. . . . Thus people and programs clearly are prospective cases. Events and processes fit the definition less well” (p. 2). Further indication of what a case study might be is apparent in Stake’s (1995) discussion of the
role of the researcher as observer and interpreter rather than as intervener. The researcher must “try to see what would have happened had they not been there” (Stake, 1995, p. 44); “other than positioning themselves, they try to avoid creating situations to test their hypotheses. They try to observe the ordinary, and they try to observe it long enough to comprehend what, for this case, ordinary means” (p. 44).

Yet, a broader interpretation is suggested by Freebody’s (2004) image of a case as an experiment-in-action. He observed that the distinctive feature of a case study is:

its focus on attempting to document the story of a naturalistic-experiment-in-action, the routine moves educators and learners make in a clearly known and readily defined discursive, conceptual and professional space (the ‘case’), and the consequences of those people’s actions, foreseen and otherwise, for learning and for the ongoing conduct of the research project. (Freebody, 2004, pp. 82-83)

Such an interpretation of case study is reflected in the approach taken by Revital Tal (2004) in her case study of parent-teacher collaboration in environmental education in Israel, where Tal herself played a role in the case as an environmental educator at the school.

According to Yin (1994), case studies have been done about “decisions, about programs, about the implementation process, and about organizational change” (p.22). He warned, however, that these are not “easily defined in terms of the beginning or end points of the ‘case’” (p.22), and thus it becomes difficult to distinguish the change process from pre-existing elements of the programme.

In the following section, I frame the context in which my research took place.
Research Design

According to Yin (1994), research design for case studies involves five elements: (1) questions, (2) propositions, (3) units of analysis, (4) the logic linking the data to the propositions, and (5) the criteria for interpreting the findings (p. 20). I follow this framework in the design of my research.

My research question is *How might critical place-based pedagogy be enacted in an urban kindergarten class?* In order to focus my attention (Yin, 1994) on the ways that the interactions between teacher, children, researcher, critical place-based pedagogy, and the process of emergent, I developed *propositions* in the form of subquestions; Stake (1995) referred to these propositions as issues. These focusing questions are:

- How do teachers and children experience a critical place-based approach to learning in a kindergarten classroom?
- What are some of the challenges for a teacher implementing critical place-based learning in kindergarten, in the Ontario context?
- How does our collaboration contribute to the teacher’s understanding of critical place-based learning in kindergarten?

The case itself, the *unit of analysis*, (Yin, 1994) is the collaboration between teacher and researcher in Doris’ kindergarten class from February to June, 2010. Both Doris and I participated as teacher researchers. At the same time, I collected data to explore my research questions about the teaching and learning processes, our emerging understanding of critical place-based pedagogy, the challenges we faced, and our collaborative process. The *logic linking the data to the propositions* and *criteria for interpreting findings* (Yin, 1994) are linked in an emergent curriculum approach that implies that all data, all interactions among and between
children, teachers, and nature, are relevant. Yet, certain of children’s theories and questions and the teacher’s actions and responses will be particularly useful in guiding learning. At the same time, those elements that were not particularly helpful in supporting learning are relevant towards gaining a complete picture of the learning process for children, teacher and researcher – and are the challenges and opportunities that compel us to go further.

In the next two subsections I provide more detail on the theory and methods of data collection and data analysis that I used.

**Data collection.**

Stake’s (1995) description of the early stages of data collection is representative of the impressionistic nature of data collection in case study research:

> There is no particular moment when data gathering begins. It begins before there is commitment to do the study: back-grounding, acquaintance with other cases, first impressions. A considerable proportion of all data is impressionistic, picked up informally as the researcher first becomes acquainted with the case. Many of these early impressions will later be refined or replaced, but the pool of data includes the earliest of observations. (Stake, 1995, p. 49)

Stake (1995) emphasized observation as the principal method of data collection. Both Freebody (2004) and Stake (1995) emphasized that as the research progresses, the observations continuously move the researcher towards a greater understanding of the case and allow a refining of the plan of observation. Freebody (2004) wrote that case studies are “empirically omnivorous” (p. 82): in addition to observation, any number of data collection methods are appropriate. It is important to have a framework or system to help trigger the accurate and efficient collection and interpretation of data (Freebody, 2004; Stake, 1995; Yin, 1994). Guided
by my research subquestions, I focussed my observation on the two broad areas of children’s experience and teacher’s experience.

A belief in constructivism suggests that “most qualitative researchers not only believe that there are multiple perspectives or view of [the case] that need to be represented, but that there is no way to establish, beyond contention, the best view” (Stake, 1995, p. 108). Therefore, there is a need for a formal process to help support the search for a comprehensive and accurate description of the case; this process in case study research is triangulation (Stake, 1995).

Methodological triangulation refers to the notion that “many findings from social science studies are subtly influenced by the way that researchers approach their work. With multiple approaches within a single study, we are likely to illuminate or nullify some extraneous influences” (Stake, 1995, p. 114).

Observations and field notes of children, teacher, researcher working and playing, indoors and outdoors, individually, in small groups and large groups, were collected. Many interactions were audiotaped and transcribed. Photographs and artifacts such as children’s work were collected. Some of this work was used as pedagogical documentation, in keeping with a Reggio Emilia-inspired emergent curriculum approach, and discussed between Doris and myself as part of our ongoing collaboration, and shared with the children and parents.

In addition to observations of her teaching and work with children, and through informal planning conversations with me, data about Doris’ journey through critical place-based learning was collected through three formal, taped, interviews of about an hour each – in November (before the project began), March, and June. Ongoing meetings with Doris prior to each weekly collaborative teaching/observation session, and notes from these meetings will also provide data on the collaborative process of emergent curriculum development.
As a teacher researcher involved in the collaborative case study, my own journey was important. I kept a reflective journal myself as a means of recording my learning through this collaborative process.

Therefore, it is important for me to be open to the interpretations of others, in particular, Doris, the kindergarten teacher.

Actors play a major role directing as well as acting in case study. Although it is they who are studied, they regularly provide critical observations and interpretations, sometimes making suggestions as to sources of data. They also help triangulate the researcher’s observations and interpretations. (Stake, 1995, p. 115)

Both Freebody (2004) and Stake (1995) highlighted the importance of getting feedback from participants on research interpretations. Doris has had the opportunity to read a draft of the research and make suggestions for additions and changes.

In case study research, and in emergent curriculum, the process of data collection is intertwined with the process of data analysis. In the next subsection I will discuss how the literature on data analysis informed my research methods.

**Data analysis and synthesis.**

Just as there is no particular moment when data collection begins, Stake (1995) also observed that there is no particular moment when data analysis begins. “Analysis is a matter of giving meaning to first impressions as well as to final compilations. Analysis essentially means taking something apart. We take our impressions, our observations, apart.” (Stake, 1995, p. 71)

Yet analysis also entails putting these parts back together again, which Stake (2005, 1995) refers to as synthesis, the purpose of which is “to get the fullest possible meaning” (Stake, 2005, p. 160). Stake emphasized that analysis and synthesis are ongoing throughout the study: “we do
analysis and synthesis more or less simultaneously and repeatedly, taking things apart and putting
them back together again, looking for patterns and nuggets, working toward descriptions and
interpretations” (Stake, 2005, p. 160). A concerted period of attention to analysis and synthesis
may occur after most of the data have been gathered as the researcher prepares for the final
organization of the report (Stake, 2005). In this report, the presentation of the data collected and
the data analysis are integrated in the Findings and Analysis chapters.

Freebody (2004) described three aims of data analysis: (1) to “compare and contrast
interpretations” (p. 83); (2) to “expand on the relevance of the project by developing unforeseen
findings and interpretations” (p. 83); and (3) to “explore findings that are anomalous to or
disconfirming of original hypotheses and impressions” (p. 83).

According to Stake (1995), “two strategic ways that researchers reach new meanings
about cases are through direct interpretation of the individual instance and through aggregation of
instances until something can be said about them as a class. Case study relies on both of these
methods” (p. 74). Yet Stake (1995) went on to focus on direct interpretation as the most powerful
approach in qualitative research. He wrote that,

At no point in naturalistic case research are the qualitative and quantitative techniques
less alike than during analysis. The qualitative researcher concentrates on the
instance, trying to pull it apart and put it back together again more meaningfully—
analysis and synthesis in direct interpretation. The quantitative researcher seeks a
collection of instances, expecting that, from the aggregate, issue-relevant meanings
will emerge. (Stake, 1995, p. 75)

Stake (1995) noted that there is no one way to approach data analysis: “each researcher
needs, through experience and reflection, to find the forms of analysis that work for him or her.”
The literature on qualitative research and on case study itself suggests that interpretation and analysis is interconnected with the way the research is written and presented, in that a rich, thick narrative approach can provide information that will allow the reader to make his/her own interpretations and triangulations (Stake, 1995).

**Ethical Considerations**

According to Bogdan and Biklen (2004), there are two essential elements of ethics in research with human subjects:

1. Subjects enter research projects voluntarily, understanding the nature of the study and the dangers and obligations that are involved.
2. Subjects are not exposed to risks that are greater than the gains they might derive.

In this research, the teacher, and assistant were informed of the obligations of this research study, and agreed to participate. The school principal gave his permission for the project, and parents of the children in the class were informed of the project, and gave their permission for their children’s participation. Samples of the Informed Consent forms are in Appendix A. The project does not involve any exceptional risks to physical or emotional safety, and is within the norm of school activities. During inclement or cold weather, we did not go outside.

Stake referred to the “ethical obligations to minimize misrepresentation and misunderstanding” (Stake, 1995, p. 109). Through the use of a variety of data collection methods and through feedback from Doris, the collaborating teacher, and through a descriptive narrative writing style, I have sought to draw an accurate, complete and complex picture of our collaborative case study. Doris has had the opportunity to read and offer feedback on a draft of the study.
A related issue is that of confidentiality. I will not disclose the names of the teacher, assistant, any children, or the school, and have sought the permission of parents before including photographs of children in the report.

Limitations

As a case study, this project describes only this particular teacher, this particular class of children, and this particular research, at a specific point in time, and under the specific conditions of our project. The learning that is gained from this project cannot be directly applied to other settings. However, as Yin (1994) wrote, it is up to the reader to determine the level of generalizability to his or her own context; by providing thick, rich description as I have tried to do, the researcher can help the reader make use of case study research. The teachers in other Kindergarten classes who were inspired to try some of our ideas used them as a starting point for experiences that became very different in their classes. Yet that is where this project is valuable – as a starting point. The questions and ideas that this project evoked are relevant for starting discussions around critical place-based learning with young children in a variety of contexts, and for beginning to explore what kinds of teacher development can support critical place-based learning and teaching.

Setting the Context: The Teacher, the Researcher, the Children, and the School

I provide a brief description of the context in which this project took place, and an account of how the project arose and developed. This grounding in place will help the reader make sense of the presentation of the research findings and discussion of the findings, in Chapters 4 and 5.

The research was conducted at a small school in downtown Toronto, where I have been teaching Reading Recovery part-time. Doris (“Mrs. I” to the children) is one of two Junior &
Senior Kindergarten teachers at the school; during the research year, she taught both a morning and an afternoon class. Doris has been teaching kindergarten for about twenty five years. Her kindergarten programme is considered by other teachers at the school to be quite strong, and as a former Early Years Literacy Project (EYLP) coordinator, she has a strong focus on literacy. Several casual conversations had revealed her interest in exploring questions around the purpose of schooling, children’s relationship to nature, and alternative ways of engaging children in learning. When I approached Doris about participating in this collaborative project she was very enthusiastic. A classroom assistant, Rita, works with Doris. Rita has been working as an assistant at the kindergarten level for about ten years.

In Doris’ afternoon kindergarten class, there were about 20 children, 8 boys and 12 girls (with some fluctuations throughout the year). Because the area is very socio-economically and culturally mixed, the children represent a wide range of experience and knowledge levels, with many having had many experiences in nature with their families – playing, hiking, camping, and gardening – that form their background knowledge, while the nature experiences of other children are primarily limited to those that occur at school. One child was formally identified with Autism, and received the support of a Special Needs Assistant (SNA). Initially he was only attending school one afternoon per week, but over the course of the project, he began to attend on Wednesday afternoons as well, so both he and Michelle, the SNA who worked with him, became participants in this research project.

Doris teaches both a morning and an afternoon kindergarten class. The choice of the afternoon class for this project was based on scheduling. I taught Reading Recovery in the mornings, and therefore was only available to observe and participate in Doris’ class in the afternoons. I joined Doris’ class, both as a participant and an observer, one afternoon a week,
during which time, weather permitting, we spent a large portion of the afternoon outside; the activities that we took part in inside connected to our outdoor experiences.

Although the formal research project did not begin until February, I conducted a pilot project in Doris’ classroom throughout the fall and early winter. This pilot project gave Doris and me a feel for working together, and a feel for the kind of work we wanted to do. In some specific ways, it helped define the formal research project that took place from February to June, giving us a place and a name, and contributing to our vision of the project.

The school has a large front and back yard, including two built play structure areas, a paved area surrounded by a large grassy field. There is a small area at the south end of the school that was established as a garden several years ago but has been unattended for many years and has become quite overgrown; and there is a more open area at the north end, that is still well-treed and shady. For our first afternoon together, in late September, Doris and I had made plans to use this area to the north as a starting point for our time outdoors. But just before the bell, we encountered Mairead, one of the JKs, and her Grade 1 brother Kieran, who told us stories of their after school “Nature Club”, which turned out to be the unstructured, overgrown area to the south, that offers strange mysteries and secret hiding places for small children. Their passion converted us, and we decided that this would be our destination. Over the course of the pilot project and the formal research project, as a class and as individuals we sometimes explored other parts of the school grounds and also went on neighbourhood walks, but this little corner of the school grounds became our outdoor home.

On that same day in September, Doris read aloud Nature Spy, by Shelley Rotner and Ken Kressler (1992), as an invitation and inspiration for the children to come outside and be “nature spies”, looking closely at nature like the child in the story. Within a couple of weeks, the
children, the teachers, and I had adopted “Nature Spy time” as a name for our Wednesday afternoon adventures.

Doris and I had both been becoming increasingly aware of Reggio-inspired emergent curriculum and our teaching bookshelves each held a couple of volumes on the subject, although we had not yet journeyed very far in emergent curriculum in our classrooms. As we talked and worked together in the fall, we could see a potential fit between the ideas and ideals of environmental education embodied in critical place-based learning and emergent curriculum. At the end of January, we attended *A Pedagogy of Relationships*, a two-day workshop organized by the Ontario Reggio Association and the Canadian Association for Young Children. Attending this workshop together gave Doris and me a shared grounding in the principles of emergent curriculum. In particular, the notions of relationality and of self-regulation became powerful themes as the research unfolded; and the tool of documentation as a means of listening to, sharing, and reflecting on children’s learning became an emerging part of our repertoire.

It was from this physical, philosophical, and pedagogical place, that Doris and I set out on our collaborative research journey. In the next three chapters, I present and analyse the data collected, seeking to understand critical place based learning with young children, through each of my three research subquestions.
CHAPTER 4: FINDINGS AND ANALYSIS:

THE JOURNEY: EXPERIENCING CRITICAL PLACE-BASED LEARNING

In this chapter, I address the subquestion, How do teachers and children experience a critical place-based approach to learning in a kindergarten class? I describe and consider the intertwining of the teachers’, researcher’s and children’s learning and experience. First, however, I preface this chapter with a description of an afternoon as nature spies – a glimpse into what this research project looked like and felt like for me, Doris, Rita, and the children.

An afternoon as Nature Spies

It’s 12:30 on a warm mid-June day, and as the children in Room 103 arrive in the classroom, they are greeted warmly by the teacher and researcher. On seeing me, Cara says happily “Oh, it’s nature spy day!” While Doris talks with a parent at the door, children begin to gather on the carpet to read and look at books. Since it is Nature Spy Day, Doris has put out bins of nonfiction books about insects and other animals, and the children are expected to focus on these books. Alex is quietly reading a book about dinosaurs. Samuel has found a book about snakes that he wants Rita, the EA, to read with him. Andrew and Mairead are still shuffling through the bins, looking for the just right book. Sienna and Sarah are in a corner, chatting excitedly over a book about ladybugs. I join them, and as we look at the pictures and I read some of the captions out loud, we discover, not only that ladybugs are beetles, but also, that, like butterflies, they undergo metamorphosis, starting life off as small black larva, and eventually emerging from a pupa as ladybugs! This is an exciting and surprising discovery, and the girls prepare to share it with the class.

After about fifteen minutes, the lights go off and the “Books away” song calls us to settle down for the afternoon welcome time. Doris and the children sing “Let the Merry Sunshine
In”, the attendance is taken, and the welcome message is read. Children who have something to share are invited to do so, and Sienna and Sarah announce that ladybugs come from cocoons, launching a short whole-class discussion of the similarities between the life cycles of butterflies and ladybugs, which Doris mediates by asking questions, and reading excerpts from the Ladybug book. Soon, Doris thanks the girls, and with excitement in her voice, announces that it is time to go outside. We gather up our Nature books, pencils and sunhats, and trek outside to our nature corner.

As Doris, Rita, and I listen and talk with the children, Sarah, Cara and Emily water our lettuce and sunflower plants, pausing to draw the plants in their Nature books. Ally discovers a family of spiders. Isaac tracks his shadow. Beatrice finds a maple key and plants it, wondering if it would turn into a maple tree. Jason and Alex found a lot of insects and enthusiastically recorded them in their Nature books. Lucie crouches under a tree and draws a tulip in her Nature book, wondering how it could grow in the shade, and writing the numeral 2 beside a picture of a pair of lips.

After about forty minutes, we head back inside, where we gather in a circle to share our wonders. Next, during activity time, some children go to centres like patterning, building, the house centre, reading, play-dough, or paint, while others go to the writing centre, where there is much to say about our afternoon’s adventures. Doris works alongside Sarah as she writes about the ladybug discovery, and I work with Beatrice as she recounts planting her maple seed.

**Introduction: Experiencing Critical Place-Based Learning in Kindergarten**

Just as emergent curriculum develops through the interactions of teacher, children and environment (Malaguzzi, 1993; Wien, 2008) there is an emergent aspect to qualitative research (Stake, 1995). Although I embarked on the research with a set of questions and a sense of the
themes I would explore, as the research progressed, I was able to refine these questions and themes, and recognize new themes. In particular, two separate questions about the children’s and about the teacher’s experience of critical place-based learning became one question, as I recognized that it was the interaction between children and teacher that shaped their experiences, and that these could not be separated. Thus this chapter addresses the intertwined experience of the children and those of us in teacher roles: Doris – the teacher, Rita – the educational assistant, and myself – the teacher-researcher. Several big, and somewhat interconnected, themes emerged: (1) the idea of fostering a relationship with the natural world; (2) the notions of how and what we teach and learn; (3) the issue of understanding what it means to be critical in kindergarten; and (4) the integration of learning across the curriculum. Each of these themes are addressed below.

1. Relating to the natural world

Much of the literature on place-based education emphasizes helping children connect with nature (e.g., Sobel, 1996; Louv, 2008). That sense of connection is particularly important in early childhood. According to David Sobel (1996):

Early childhood is characterized by a lack of differentiation between the self and the other. … We want to cultivate that sense of connectedness so that it can become the emotional foundation for the more abstract ecological concept that everything is connected to everything else. (p. 13)

Carol Anne Wien (2008) beautifully described the concept of relationality as understood in the Reggio Emilia-inspired emergent curriculum tradition: “it includes relationship building among people, but equally so it includes the notion of supporting children and teachers in grasping the interconnectiveness of all living things and our responsibility to sustain life.” (p. 7). This subsection is about how children and teachers in my project expressed, developed and
strengthened this sense of being in connection with the natural world. Particular patterns of relating that emerged include: the simple joy of connecting with nature; imagining and theorizing about nature; the development of empathy; and the development of stewardship.

**The joy of connection.**

For many children, their experience of nature was naturally one of joy, comfort, and connection. This is what Jason felt when he whole-heartedly launched himself into pushing a gigantic snowball halfway across the field in February. It’s what Isaac felt when he quietly sang to the sunflower plants in June. And what Sienna and Ally tasted when they tore off pieces of lettuce we were growing and popped it right into their mouths. It’s what Claire, Monique, and Andrew heard when they became a pack of wolves and their own howling voices bounced off the walls of the school. When Alex found a spider and delightedly showed it to his friends. When Mairead and Samuel dove into a pile of leaves and came up laughing and smiling.

Doris described her own joyful consciousness as the trees came into full bloom in the spring, and how this project had helped awaken her own attention:

You know it’s such a miracle, especially this year it made me reflect on it, because we go out, and one week we would see just tiny tiny buds and almost no leaves on the trees, and then I think we missed a week … and the next week, that was two weeks passed, there were leaves out already, so it’s gone from tiny buds to leaves, and then all of a sudden it’s just this plethora of [flowers] and everything’s in full bloom, and I said, this is a miracle, and every year we can see this miracle happening, and we don’t stop to enjoy it, and just be fascinated by it. (Interview 3, June 2010)
As Jon Young, Ellen Haas and Evan McGown (2010) wrote in *Coyote’s Guide to Connecting with Nature*, teachers embody the values and attitudes about nature that they implicitly and explicitly pass on to their students (p. 14). Doris’ own sense of wonder in nature is thus a model to the children. And as Isabel said to Emily, “If they copy you that means they like you. Everybody copies Mrs. I.” But the teacher as model is not fixed; that is, as Young, Haas and McGown (2010) emphasize, part of being a mentor or teacher is a constant journey of self-knowledge; similarly, the notion of teacher as researcher (Wien, 2008) described by the emergent curriculum approach suggests constant teacher development and change.

At the second interview, in March, after having attended the workshop *A Pedagogy of Relationships*, and worked together for some months, on the pilot project and the formal project, Doris emphasized the notion of relationality as she described her understanding of environmental education:

> I like the way that the Reggio talks about developing a relationship, so it would be developing a relationship with nature. I’ve started now thinking more in terms of learning as being a relationship instead of being an intaking of information, developing a relationship (Interview 2, March 2010)

While it was apparent from the way she laughed with the children and included music and games in her teaching, that Doris believed that learning should be joyful, it was not until the second interview, and even more in the third interview, that Doris began to describe joy – and in particular, the joy of connecting with nature – as a specific goal of teaching, an end in itself rather than a means to an end.

> …. I see Isaac and Ally, I guess for Isaac when he brought in the sunflower seeds that he planted, and then we watched them grow, and then to watch the excitement
with which he participated in the transplanting and then we went out the last day
and he was singing that little thigmomorphogenesis song. To me that is a delight
because it shows an ongoing relationship that he started to build with nature, and
to me, that’s a real key thing. (Interview 3, June 2010)

Similarly, Doris began to tentatively recognize the value of spending time in nature, for
its own sake:

And [just] because they’re not totally coming up with an answer, or maybe seem
totally focused, doesn’t mean they’re not getting something out of it. They’re still
experiencing every week that time with nature. (Interview 3, June 2010)

It became apparent that children’s sense of relationship with nature was something that
developed and strengthened slowly over time.

I think that their interest is growing. The wonder was, whether their excitement
would wear off, but no, I think it deepened their appreciation, and their
knowledge, and started a real relationship with nature, and I think that – I can’t see
it diminishing and disappearing, can you? Once they start to care about the earth,
and the magic of things growing and… (Interview 3, June)

It was the specific opportunities that Doris and I provided for the children that played a
large role in shaping their relationship with nature. The important role of the teacher in
establishing the environment for learning (Wien, 2008; Bronson, 2000) was made clear to us both
by the children’s joyful connections, and by their absence. A particularly memorable learning
experience for the teachers occurred towards the end of the year. Doris and I wanted to try
introducing the concept of a sit spot (Young et al, 2010) – a place that is meaningful to each child
where he or she can simply sit and experience and appreciate the nature around them.
We invited the children to each find one of their favourite spots and spend some time sitting and thinking. But that afternoon, the usually happy atmosphere of children running, laughing, and looking closely, was replaced not with quiet focus, but instead with reluctant isolation. Instead of happy shouts of “Look what I found!”, an observer would have heard Doris and me repeating “Go back to your spot,” “I’m counting to 5 for you to go … I’m counting to 5…,” “Stay there,” “We’re not going to talk now.” Our voices were gentle and our intentions were good, but for many children their sense of isolation and even punishment was great. In our haste to have everyone sitting somewhere, we neglected to think about how meaningful their spot really was for each of them. While a few children soon found a favourite spot and sat down to explore, Mairead wandered around uncertainly, and Andrew hung unhappily to a tree, but did not sit, or appear to reflect or connect, stating quite clearly that he had no favourite spot.

Yet a short time later, after we called the children together to share what they had seen, and then released them to revisit their spots – but this time with more freedom, Andrew’s excitement returned. He found me and directed me to a tree at the back of the yard, where we had collected flower blossoms a few weeks earlier, and showed utter joy and fascination in looking at and thinking about this tree, and remembering our previous encounters with it.

Reflecting on what had gone awry, some key elements became apparent. We neglected to consider what a shift this request was from their usual outdoor routine of free exploration. Bronson (2000) in her discussion of self-regulation describes the importance of routines for giving children the security to explore freely; according to Young, Haas and McGown in the *Coyote’s Guide*, routines for learning in nature, like any classroom routines, need to be carefully taught. A smaller space, a shorter time span, and the expectation that their sit spot skills would develop over time, might have made our first experience of it flow more smoothly.
Another element that this struggle helped make clear was that for many of the children their relationship with nature was tied to their relationship with each other and with the adults in the class. Andrew rarely travelled anywhere outside without Ally or another friend, and the importance of this relationship was highlighted when the favourite spot he finally found was a tree he and Ally had delighted over a few weeks earlier. Similarly, wandering Mairead became enticed to sit and look at ants after watching and listening to her friend Beatrice observing the activity around an ant hole. A teacher’s or a peer’s passion and joy can easily become contagious.

For many children, the relationship with nature that they were building at school was inspired or strengthened by their experiences in homes that already had great appreciation for nature, allowing a deeper connection and a reciprocity between home and school that affirmed their joy in nature. It was embedded in their most basic relationship with their parents. Alex, for example, often recounted tales of his discoveries while on family hikes and camping trips. Isaac brought to school some of the sunflower seedlings he had planted at home, and as they grew, so did Isaac’s joy and confidence.

For other children, the relationship with nature they were building at school opened their eyes to greater awareness in the rest of their lives. According to Claire’s mom, when Claire went on a hike while visiting her grandparents, she eagerly directed everyone to “look closely, like Nature Spies”, and attentively did so herself. For many children, this looking closely became a routine on the walk to and from school. Samuel rethought his own practice of killing spiders at the cottage (as described in a later section). Doris told how the planting we did in the classroom inspired Beatrice at home:

I know that Beatrice, I met them out at a store and they were getting seeds and plants to plant, because I think that she was pressuring them to get – let’s get some
seeds and plants and see. So I think that the interest from the kids, they would talk
to their parents and encourage their parents to do this gardening – let’s get some
seeds, let’s plant a garden. So I think that it makes it authentic when we’re doing it
in school. It really brings the value of it up. (Doris, Interview 3, June 28)

However, while relationships with family and with other children were important to
fostering children’s comfort in the natural world, it was important to Doris and myself that the
core of their experience be focused on the natural world. This is affirmed by research by Vadala,
Bixler and James (2007) that distinguished between child-nature play and child-child play in
nature, and suggested that “children whose play [outside] tended to involve interacting with
nature as opposed to interacting with each other may be more likely to have pleasurable, overt,
and implicit learning experiences with and about natural objects and creatures” (p. 14). They
defined child-nature play as play either solitary or with others in which “the focus was on
observing, catching, exploring, or creating with natural objects” (p. 7).

**Imagining and theorizing the natural world.**

The children’s relationship with, and joy in, the natural world, was both mediated by, and
revealed by, their own developing theories and imaginings about that world. As four-year old
Ally looked at some pink flowers and drew them in her Nature Book, she chatted quietly about
what she saw, and what she thought.

Ally – Dinosaur pink

Ally – (happily drawing) They have blossoms on them.

Ally - Look at this dinosaur rock…. This is actually made by dinosaurs. … It’s
dinosaur pink. That colour. So it’s made by dinosaurs.

(Excerpt from transcript, May, 2010)
The dinosaur theme emerged repeatedly, with a number of children suspecting that the ground was so hard in winter because there were dinosaur bones just below the surface, and a repeated series of discoveries and rediscoveries of dinosaur bones in the exposed roots of an old maple tree.

Inspired by the Reggio Emilia approach, Doris and I often used documentation to reveal and recall children’s thinking, as in the following excerpt from documentation:

<table>
<thead>
<tr>
<th>Lucie and Ally and Beatrice and Cara noticed that some of the grass is green, and some of the grass is white.</th>
<th>What do you think? (Excerpt from documentation, March)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Why?</td>
<td></td>
</tr>
<tr>
<td>Beatrice thought “The snow is white. Maybe it makes the grass white.”</td>
<td></td>
</tr>
</tbody>
</table>

Continuity and repetition were important to children’s joy in nature, and to their development of theories about the natural world. The fact that the children could expect to spend one afternoon each week outside allowed for the space and time for them to revisit their ideas. There is both a renewed joy and a renewed awareness in remembering a past experience of pleasure and wonder. For example, Isaac experienced great delight at discovering his shadow one afternoon when the sun came out from behind the clouds. A few weeks later, as he and Jason discussed whether a shadow was part of nature or not, I recognized the deepening of his understanding and interest.
As Beatrice watched the ants moving around an ant hill, she showed the joy she felt in theorizing about the world around her.

Beatrice – I just found this spot, this wasn’t my favourite spot. I just found it, and then I looked at it, and then I realized there’s so many things in it, so I looked closer and they were ants, red ants…

Beatrice – And I started thinking what the ants are doing?

Rebecca (Teacher Researcher) – So what are they – why are they all wandering around?

Beatrice – I think maybe they’re wandering around to look for food, but I don’t think they see any, so I think that’s why they’re staying up so long.” (excerpt from transcript, June 2010)

Children’s theories about the world are revealed not only by what they say, but also by what they do. According to Beverly Falk and Linda Darling-Hammond (2010), “good teachers are effective because they understand their learners as well as their content, and they are able to bridge the divide between what students already know and care about and what students need to learn” (p.74). Thus it is important that teachers listen to, and really hear, children’s ideas and theories.

**Developing empathy.**

Our time experiencing and talking about nature also provided a context for the development of empathy, which Doris referred to in her discussions of the purpose of environmental education:

I was also thinking that it also, I think helps support the growth of empathy and emotional development as well, because I think once they start to care about small
bugs and living things in nature, and once they start to care about plants growing, and how to care for them and how to water them and how to look after them, I think it will lead to a more empathetic personality. (Interview 3, June)

Yet, it also became apparent that empathy does not always develop in a straight line. In particular, the world of insects held some challenges for us. As spring came upon us, and the ants, ladybugs, bees and other insects emerged, many children revealed their comfort, or discomfort, with having insects crawl on them. In mid-June when the children’s energy was high, an unfortunate carpenter ant encountered Isaac, who happily let it crawl on his arm, but was soon waylaid by several other children, keen to also have a chance with the big black ant. After several transfers back and forth, the unfortunate ant made its escape and was seen limping off into the grass, as the children went off on their next adventure.

Among the world of small crawling things, there were some that gained the children’s natural admiration and care – like caterpillars, ladybugs, and ants – and others that had a natural enemy in many of the children. When Jason told us that he was afraid of insects, a discussion of insect (and spider) experiences ensued, and gave Samuel the opportunity to question his initial tendency to squish spiders, as this excerpt from the documentation reveals:

Jason said that he is afraid of insects.
Hmmm, how can we help him not be afraid?
Samuel told us about the time he saw a big spider on his cottage wall.
Should he squish it or make friends with it?

That gave Mrs. I. another connection, to the book we’ve been reading, Hey, Little Ant!

At activity time, Samuel decided to draw the tarantula and the spiders at his cottage. He worked and worked and worked to make his pictures look just right. Then he wrote down his story! (Excerpt from documentation, March 2010)
In fact, the original version of Samuel’s story was that he had squished the “tarantula” on the door of his cottage. When Doris and I brought up a connection to a book she had recently read to the class, *Hey, Little Ant*, by Phillip and Hannah Hoose (1992), in which a boy tries to decide whether or not he should squish an ant, Samuel’s story suddenly changed to one in which he made friends with the “tarantulas” at his cottage, and makes a point of seeking them out whenever he goes to the cottage.

When Ally discovered small red spiders on the climber, she was considerably less amenable, declaring “I hate them. They bite” and nearly using the watering can to water them away.

I was concerned about what the incidents with Ally and the spider, and with Isaac and the ant said about the children’s developing sense of empathy. And I wonder, is Samuel still friends with the “tarantulas”, or not? My concern is what kinds of interactions foster genuine and sustainable empathy? And how do we foster a sense of affiliation with spiders and other less cuddly animals?

Perhaps empathy is once again more about the development of relationships than about a specific feeling. According to a study by Vadala, Bixler and James (2007), most young adults who later chose careers or lifestyles characterized by great concern for nature, had had experiences as children of being in close contact with nature – and these included both experiences that were appreciative of nature and experiences that were destructive or uncomfortable (p. 14). I wonder if the contradictory experiences of both gentle care of animals and small violences, together create cognitive dissonance (Festinger, 1964, as cited in Bronson, 2000) that forms a foundation for a greater sense of caring for animals and nature. Further, if our goal is to foster a genuine relationship with nature, then it would be dishonest to deny that some
animals, including some insects and spiders, are either dangers or pests to people, and that in fact, nature is not always peaceful.

**Developing stewardship.**

Related to empathy is the notion of stewardship -- of developing a sense of caring for nature, and a commitment to caring for nature. This was an important message for Doris. Throughout the year, she paid attention to establishing opportunities to develop a sense of stewardship:

One of the important things that I’ve realized, that’s missing, going on in my classroom now that nature’s coming in is the actual nurturing and caring for the plants in the winter. (Interview 1, November 2009)

As we talked at the second interview about our plans to plant a small garden in the Spring, the idea of relationship came up again, in a notion of stewardship grounded in relationship with nature:

I’d like to see a little garden in there. I think if they look upon it as theirs, and I think if we truly want to develop a sense of caring for their environment, that’s where they’re going to start to learn to care for things. … I think that if we could start to rake there, and start, they would understand the whole process too, that you have to put input in to care for the earth, it’s not just a feeling inside, or the words that you say, or the books that you read about. You physically have to take the time, and do certain actions, just like people have to when we have a relationship with each other. We have to do things to show we care for each other. (Interview 2, March 2010)
In late March, we planted lettuce, sunflower, and pea seeds in the classroom. At the second interview, as we discussed our plans for planting seeds in the spring, Doris reflected on the news that some of Isaac’s sunflower seeds he had planted at home had failed to germinate, and she considered an experiment in the classroom, “So it’s interesting, that’s another thing to think about, why did some die? Maybe if you have an extra [seed], I should take it and put it in the dark somewhere” (Interview 2, March 2010).

As it turned out, many of the seeds we planted did not germinate the first time around. This problem eliminated the need to put a seed in the dark, and created an opportunity that stretched out for several weeks for children to theorize about how plants grow and to develop their knowledge and understanding of plants within the context of caring for the plants. (This situation is presented in greater depth in Chapter 5.) Reflecting on this experience, I contrasted it in my research journal with a more formal experiment of the type Doris and I had earlier considered:

Despite difficulties, I like this natural approach better than formal experiments — e.g., some seeds with water and without water, some seeds with sun and no sun, because it sends the implicit message that our goal is to grow seeds and that we care about the seeds, rather than letting them be wasted in the design of the experiment. (Research Journal, May 2)

Thus, the children were able to experience genuine stewardship in action.

However, consistently modeling and enacting stewardship was often easier said than done, a reality that I will discuss further when I address the challenges the project faced, in Section 3.
Giving thanks was also a part of our relationship with nature. For example, as we met together in a circle outside, Doris started by saying, “First of all let’s thank Mother Earth for providing us with this wonderful tree to give us shade for our nature spy day. Thank you mother earth. Let’s all say it together.” Giving thanks is part of becoming aware of the world around us, and in considering the notion of stewardship, it is also part of recognizing the reciprocal nature of our relationship with the natural world – that while we have a responsibility to care for the natural world, the natural world is also the source of our life and well-being. As she considered the purpose of this project, Doris herself reflected on our place in the world:

I’m just thinking that since the planet seems to be shrinking, and since a water shortage in Africa is really going to become all of our problem, I think, in the very near future, we have a finite amount of water on the earth, we have a finite amount of land, … We cannot keep on just using and consuming the earth’s resources without thinking about it. And so, I think developing a caringness for nature, I think starting in kindergarten, I think is really important, and because I can see the kids’ thinking shifting. (Interview 2, March 2010)

2. Learning and Teaching.

Environmental education embraces not only a shift in content, but also a shift in purpose and pedagogy (Stone, 2005; Capra, 2007). A focus on the skills that support responsible active citizenship (e.g., Gruenewald, 2003, 2008) is important to critical place-based pedagogy. This subsection is about how the young children in my project learned about their place, but also how they learned to be learners, and how teachers learned to be facilitators of that learning. The work we did is organized into two large patterns of teacher and child behavior: supporting self-regulation, and looking closely.
Self-regulation.

Long before Doris and I began to use the term *self-regulation*, introduced to us in late January at the Reggio Emilia inspired emergent curriculum workshop, it was a goal for our project: Doris expressed it in terms of natural curiosity, independence and a sense of personal wonder:

I want them to go out and have that sense of wonder, and to come up with their own questions and thinking, and to wonder why. I don’t want to have to pose all the questions for them. That’s my goal…. How do we do that? How do we get to that point? And some of them do it naturally – they look at something and they wonder. (Interview 1, November 2009)

At the same time, Doris recognized the important role of the teacher in establishing both a physical and a [cultural] environment in which children had the opportunities to wonder and be curious, where their self-regulation was supported:

That was the big sort of aha thinking part for me. Yeah, I want them to come in and be anxious to come in, not just to follow the rules. Yes, I want there to be a sense of order and I want them to know how to take a book and how to put it back, but I also want them to have a place for them to go and be excited about, thinking about things and wondering, oh! I wonder what’s that, I can’t wait to go to the back and see if my little seed is growing, or whatever, something that’s happening, evolving, growing. What do you think? What kind of area of wonder is there here for them? What am I doing? What am I nurturing? (Interview 1, November 2009)
According to Bronson (2000), “motivation for self-regulation is aroused when children believe that they are responsible for their actions, that they are capable of controlling them, and that they have choices” (p. 201). This closely relates to the notion of agency referred to above (Scheinfeld, Haigh & Scheinfeld, 2008). Therefore it is important that the teacher establish an environment that is sufficiently open that children have room for choices and responsible decisions and for experiencing safe consequences of their decisions, and sufficiently structured and familiar that children know what to expect and have a background context for making choices (Bronson, 2000). The structure of our Wednesday afternoons, characterized by a routine of reading, welcoming, outdoor “Nature Spy” time in our familiar nature corner, sharing, and activity and writing time was one that became familiar to the children. Yet much of the time that we spent outside was in fact unstructured or open-ended, when the key decisions about where to go and what to look at in the school grounds were up to the children. Vadala, Bixler and James (2007), highlighted the importance of exploration for developing a connection with nature. Similarly, in the Coyote’s Guide to Connecting with Nature, Young, Haas and McGown (2010) advise planning for at least 50% what they call Wander Time in any nature experience.

While this time was not teacher-directed, it was still teacher-scaffolded. Doris and I found that the children were most engaged when the context was open-ended but where they had tools to help support their focus. In particular, once we introduced Nature books that the children brought outside to draw and write what they found in nature, the children’s motivation to focus on things in nature was greatly increased – as measured both by the scale of how many times we had to redirect them from the built climbers, and also by their capacity to look closely and draw with increasing accuracy items that they found in the school grounds. Vadala, Bixler and James (2007) likewise advise offering simple tools to help focus children, like jars for collecting insects.
A range of choices of activities was helpful, and as the small garden was established, caring for the garden became another choice during this open-ended Wander or Nature Spy time. Even when we did offer a scavenger hunt, the tasks were very open-ended: to find something purple, something small, something round, and for the children to find their own item that the group would have to guess.

Over the course of the year, not only did the children become more comfortable in the school grounds, but Doris became more confident in their capacity to self-regulate and more able to give them the intellectual space to do so:

I think that having done it for September, October, this is now the beginning of November, I think I’m becoming more relaxed in the sense that when we go outside I don’t have to feel that there’s absolutely rigid control, that the kids are all doing something all the time that I can see and chart down that this is meaningful.

(Interview 1, November 2009)

Doris also became more comfortable giving children physical space within our large school grounds. In the Fall and Winter, she still insisted that everyone stay in one corner of the grounds, unless she or I accompanied them; by Spring, she was more relaxed when, for example, Ally and Andrew happily explored the north end while the rest of us stayed in the south nature spy corner.

The children’s own motivation to learn about nature, and their capacity to self-regulate their learning, was revealed in small things every day: like their engagement in the discussions about the seeds that didn’t germinate, discussions about ladybugs, ants, bees, living things, and other questions; or Beatrice’s attention to her ant hill; or Lucie making several drawings of the same tree until she was satisfied with how it looked; or when Jason sat down beside Alex with his
Nature book and said “Let’s share what we found”, before Doris had a chance to ask them to do just that.

At the third interview in June, reflecting on the work we had done, Doris commented on the power of nature for setting up a context in which children were motivated and inspired to learn:

And to me also it’s authentic learning, in that it’s not forced from the top down. It taps into the natural curiosity of the child, because when you’re out in nature they’re looking and exploring and they’re following their own guide and their own questions, instead of trying to satisfy standards that have been set in the classroom by adults around them.

… I would think that the biggest thing is the development of natural curiosity, and for me it’s the nurturing of that. (Interview 3, June 2010)

In terms of the goals of environmental education, as Mayer (1996) described, if we are to expect children not just to care for the environment but to take action to protect it, then it is important that they develop the skills and confidence of believing that they can make a difference. This is the power of children making choices in their environment, and the power of interacting in a relationship of empathy and stewardship with each other and with the natural world.

At the June interview, Doris commented about how she and the children began to learn and interact in a more genuine relationship-based way over the course of the project. The capacity of children to focus and demonstrate attention, an important element of self-regulation, was important to Doris, and in fact often served for her as a measure of the effectiveness of our project:
Now remember at the beginning, their attention span was so short, before they thought they’d seen everything they wanted to see in the yard, and now we’re able to go so much deeper and richer. And some of the children, even when they have an opportunity to go on the play equipment, they never ever choose that.

(Interview 2, March 2010)

Rita, the educational assistant in the classroom, also observed a change in the children’s behaviour, focus, and capacity for independent thinking, as the project unfolded, confessing, in March, that early in the project it felt like a waste of time, and that it seemed to be just about trying to keep them off the play equipment and keep them controlled, and “now they’re really thinking and I see them really looking, and they have so much longer focus”.

For several children, like Samuel, the capacity to pay attention was an area of particular challenge, as this discussion at the second interview illustrates.

Doris – …Everybody’s attention span is getting longer, but what I’ve noticed is the ones that have a longer attention span inside also have a longer attention span outside. Because what I was wondering was, would there be a difference? Would some of them be more focused outside than they were inside? And I would say it’s quite similar. Do you find this?

Rebecca (Teacher Researcher) – Samuel may be more focused outside than he is inside. He’s not more focused than other children, he’s more focused than himself.

Doris – Well, because he has a chance to look and then run in between, and spread his wings a bit. So, yeah, that’s, that’s another thing, and I don’t know if that’s something that we need to focus on and to think about or if it’s just natural, I guess they develop that. I don’t know how to change that. (pause) There’s been quite a
bit of open-endedness outside, we haven’t been so demanding on what they do specifically so they have a lot of choice.

Rebecca (Teacher Researcher) – Which is I think sort of doing that emergent piece outside.

Doris – Yes, I think it’s important to do that. And so I’m wondering if because of doing that it’s just going to take more time and we have to be patient.

(Interview 2, March 2010)

Through ongoing conversations like this one, we wrestled as teachers with the balance between self-regulation and teacher-scaffolding.

Samuel often buzzed around, not landing anywhere for long enough to focus. But when he discovered a mud puddle that might have been chocolate, and when he sat on a bench tracking the movements of a little worm below him, and when he landed on a little rock that puzzled him with its spots – and with the help of probing questions from myself or Doris, or even a peer, he stayed for long enough to come up with his theories.

Perhaps the routine of regularly wondering about things, along the scaffolding of my questions helped Samuel to focus his thinking. According to Salmon (2008) learning and practicing thinking routines can help children develop higher level thinking skills. At the same time, the opportunity to move more freely outside was allowing him greater scope for self-regulation.

The broad pattern of looking closely encompasses a great variety of the specific ways that children enacted their learning, and that Doris and I worked to facilitate the children’s self-regulation and learning more generally.
Looking closely, looking again, slowing down.

Starting with reading *Nature Spy* in September, the idea of looking closely was an important one that Doris and I wanted to develop with the children. As the project developed, we began to understand better why and how looking closely was so powerful.

Ritchhart (2002) described curiosity as a sort of self-renewing fuel that helps us “generate questions and pose problems” (p.28). This notion puts a new perspective on Doris’ recognitions at Interviews 2 and 3 that the children’s capacity to focus and their interest in nature was continuing to grow – that the closer one looks the more there is to see.

Doris and I worked to develop the children’s capacity to look closely by looking closely at nature ourselves, by noticing the small and the wondrous and bringing it to children’s attention. We also listened and looked at what they were interested in, and strove to deepen their attention. Questioning or commenting on how many was helpful for focusing attention: How many petals does this flower have? How many leaves are on this branch? Shape, size, and relative size were important too: Which leaf is bigger? How many are big and how many are small? Is it curvy or straight?

Encouraging children to use other senses – touching, smelling and listening – also increased their motivation and skill for attending more fully to the world around them. For example, Sienna worked with playdough in the classroom to revisit and look again at her experience of making a snowman outside:
And, in this whole class thumbs-up activity after the children had been looking closely at their special spots, a question about what children heard reoriented their attention beyond the visual, not just looking closely, but using all senses attentively.

Rebecca (Teacher Researcher) – “Put up your thumb if you heard with your ears some birds.”

(Many thumbs up)

Jason – “Me and Isaac also heard crickets!” (excerpt from transcript, June 2010)

When children had opportunities to draw what they had seen, or what they were presently looking at, their attention was challenged further. In Reggio Emilia schools, the concept of the Hundred Languages of Children asserts that when children represent objects and concepts through various media, such as drawing, sketching, painting, clay modeling, wire-modeling, as well as drama and conversation, they practice and strengthen their deeper ability to really see and understand what they are studying (Malaguzzi, 1993). Lucie’s drawing of one of our seedlings in Appendix B-1, and Jason’s drawing of a piece of honeycomb in Appendix B-2, show their careful attention to details. Many children benefited from some teacher scaffolding and support to
look closely. After Cara made her first attempt at drawing a cross-section of a tree, Doris briefly commented to her “I can see the parts going round and round, but I’m confused about [this part]. Look again closely. …” So Cara marked #1 on her first attempt, and looked again. Her two drawings are in Appendix B-3.

In our project, looking closely also meant thinking closely – wondering, imagining, and asking questions. As Ritchhart (2002) reminds us, if children are to develop their thinking skills, then it is important that there are objects and events that will engage children’s thinking. Looking closely required a slowing down, and often a looking again – for both the children and the teachers. In May, when we transplanted some of our sunflower plants to two barrels in our fledgling garden, Doris and I saw how slowly the children needed to go to really experience and understand what they were doing and why. For Doris and myself, it was a challenge to slow down and let the children lead the way – a challenge that also took us some time to pick up on.

As four-year old Claire and five-year old Sarah dug holes for the first plants, they both dug, and dug, until they had almost reached the bottom of the barrel. The first time this happened, Doris gently said to Claire, “Let Mrs. I. show you”, and she filled in the hole, and dug again. The second time, a few minutes later, the universality and intransigence of this problem was beginning to make itself clear. Doris took one of the sunflower plants and tried to put it in Sarah’s hole, allowing Sarah to see that the plant would be completely covered up in such a deep hole, and then she helped Sarah to fill up the hole to a more appropriate level. When we returned to the classroom and gathered together on the carpet to reflect on the transplanting process, the challenge of looking closely in the sense of remembering and recalling details became apparent, and likewise the importance of practicing this disposition. This brief excerpt gives a glimpse into
how Doris used questions, drama, music and a positive and energetic tone to support Sarah and the whole class to look closely not just at objects but at events.

Doris – You were digging! So let’s sing “First we dug the hole, first we dug the hole, first we dug the hole, then we transplanted the sunflowers” (the whole class sang to the tune of The Farmer in the Dell).

Doris – How deep did you dig Sarah?

Sarah – I dug just the right amount.

Doris – Well, guess what? I have a picture of Sarah when she dug soooo deep, remember the first time? (to Sarah) She went like this, Dig, Dump, Dig, Dump (making digging actions). And then she looked, and we put the sunflower in, and here was the top and the sunflower was way down here and she said – what did you say?

Sarah – (retelling what she said, or might have said) ‘Aw, no,’ Why? If you put the dirt on the flower, that’ll make it die.

Doris – It’ll cover up the whole sunflower. She dug the hole TOO DEEP. So what did we do, Sarah?

Sarah – Fix it and then it will be right.

Doris – So then she fixed it and then she dug a smaller hole. Let’s dig a smaller hole. (digging actions)

(excerpt from transcript, May 2010)

Looking closely required a kind of slowing down from the teachers, in the sense of taking the time to look again at what children were doing, to revisit things that seem finished, to understand what and how children understand. It allows teachers also to look closely at events,
allowing an opening up of opportunities for learning – so that the simple act of digging a hole became instead fertile soil for looking at, exploring and enriching Claire and Sarah’s theories about depth, size and volume, their self-regulation, their relationship with each other, their comfort with the soil, their oral language development, and their own ability to look closely. Even in this rich interaction, Doris was just beginning to tap into the potential of looking and listening closely to Sarah. “Research, or looking again, is also a kind of listening. . . . Listening starts with the adult trying to grasp the children’s perspective and build from there, rather than starting with curriculum content” (Wien, 2008, p. 14).

Doris commented in the third interview about her increasing comfort with going slowly:

And that I think that was a growth process, certainly it was for me, to slow down… That need to feel that at the end of the day, what have we accomplished as a nature spy today, well some days maybe not as much as others, but that’s okay too. (Interview 3, June 2010)

However, the notion of looking closely for teachers of young children provides more than just permission to go slowly, but also establishes the responsibility for teachers to recognize the complexity of learning that such simple acts as digging or drawing can lead to, if we take the time to look closely at what children are doing and to wonder about what they are thinking. The tool and orientation of documentation (Falk & Darling-Hammond, 2010; Turner & Wilson, 2010; Wien, 2008) helped Doris and me to look more closely, listen more closely, and think more creatively about what children are doing. Yet, just as the children were learning to look closely, we were learning to look closely, to redirect our attention from the formal Curriculum to the children’s curriculum. I will return to our journey of using documentation to look closely later in Chapter 5.
3. Understanding critical pedagogy

A thread running throughout the project was the ongoing search for understanding about what it meant to be critical in kindergarten in the context of place-based learning, or learning in nature. This subsection is organized into two big explorations: a discussion of implicit versus explicit critical pedagogy, and also a discussion of the kinds of thinking skills that comprise critical pedagogy. Throughout the section, my perspective is that of understanding what is developmentally appropriate for young children.

Implicit versus explicit critical pedagogy.

Critical pedagogy is about consistently recognizing, challenging and rewriting those cultural and societal structures that restrict and imprison us in socially – or environmentally – unsustainable relationships (Gruenewald, 2003). In the context of place-based pedagogy, the attention is on those structures that impact on our relationships with place, in either a local or a global sense: issues around our place in the world, and our rights and responsibilities with respect to other living things, that are enacted in the way food is produced and distributed, in the way our homes and cities are built, in how our waste is disposed of, in how we manage transportation, and in how we relate to each other. As I noted in my research journal entry near the end of the project, I was concerned about both the quantity and quality of our attention to damaging or unsustainable cultural structures:

My biggest concern is about critical pedagogy – how critical has our project been?

How much have the topics even gone beyond the concrete/natural and towards beliefs/values/structures that can even be questioned? Perhaps they have – e.g. Ally wanting to kill the spiders. But I didn’t really take the opportunity to
challenge this deeply – questioned her and included it in documentation but is this 

enough? (Research Journal, June 28)

In an article on young children and teaching for social justice, Kelly and Brooks (2009) suggested that many teachers (although their focus was on pre-service teachers) struggle with the 

notion of developmental appropriateness when deciding whether or how to teach about social 

justice issues. They juxtaposed a position of teacher neutrality with an anti-oppression approach – 

teachers who tend to espouse this approach:

saw that their pedagogical decisions (and non-decisions) either supported or 

challenged the inequitable status quo. They did not want to feign neutrality; 

instead, they desired to model inquiry and engagement while ensuring that their 

viewpoints were open to student critique. (Kelly & Brooks, 2009, p. 210)

In the first interview, Doris described making butter with her class, and linked it to the broader 

issue of where food comes from:

In the cities we’ve gotten so far away from the origin of where things come from, 

that it’s a shame. And we need to really work at a young level, to bring them back. 

We made butter yesterday. … And we sat in the circle, it wasn’t a small group 

activity, it was, we just passed the little jar around, and that’s how many shakes it 

took, it took hundreds of shakes to make butter, but that sort of experience I think 

is worthwhile, because I think they need to know that everything isn’t immediate, 

and there isn’t instant gratification, sometimes you have to work for things, and 

things take a lot of effort. (Interview 1, November 2009)

Doris’ description of reconnecting children to where food comes from resonates with the 

importance of going slowly discussed in the previous section. Yet it also goes further to suggest
perhaps a critical pedagogy that is not only implicit rather than explicit, but also aimed at (re)constructing sustainable values rather than deconstructing unsustainable ones.

In fact, as I reread Doris’ words, I was initially surprised to see that her next sentence seemed to be so disconnected from this discussion of the deeper purpose of our project. She said “So (pause), I look forward to going out on Wednesday afternoons, because I think it’s nice to get outside.” On reflection, however, her words also represent a recognition that perhaps the time spent developing a relationship with nature – and sometimes that means being outside just because it is nice! – is at least as powerful a means of fostering values, norms and structures that support sustainability, as talking about them explicitly. Again, thinking about the several incidents with Ally and the spiders, I wrote in my Research Journal in June, “Perhaps it is implicit in the long term project of promoting love for and understanding of nature, and doesn’t have to be addressed explicitly or specifically?” (Research Journal, June 2010).

The example of children wielding the power of their feet and watering cans over spiders highlights the need for developing comfort through long-term relationship and experience with insects and bugs. But it also calls for genuine honesty in looking at the relationship between children – and society generally – and nature. Falk and Darling-Hammond (2010), in their discussion of documentation and democracy, wrote “being able to truly see students requires that teachers learn to look and listen carefully and nonjudgementally in order to understand who students really are, what they think, and how they make decisions” (p.73). Paolo Freire, as a father of critical pedagogy, emphasized the importance of teachers intimately and thoroughly recording observations of their students, and “taking the risk of making critical and evaluative observations without giving such observations airs of certainty” (Freire, 1998, p. 49, as cited in Falk & Darling-Hammond, 2010, p. 74). For example, after an incident in which Ally and Jonah
found some baby spiders and wanted to kill them, I attempted to make this incident visible for all the children. By framing this situation as a question, my hope was to plant some seeds of doubt about the dominant attitude to spiders, while balancing a commitment to not being personally critical of any of the children.

Ally found a whole family of baby spiders!

What should you do when you find a spider?

(excerpt from documentation, May 27)

And, reflecting on my use of documentation, I wrote in my research journal in early June, “The critical place-based lens has essentially become replaced by Reggio/documentation/wondering – is there any other alternative in early years?” (Research Journal, June 2) That is, rather than seeking to convert children to a more peaceful relationship with spiders, a critical pedagogy grounded in relationship might seek to understand and theorize about why these members of the animal world are particularly vilified by the children in the class, and to open this theorizing up to the children. It might involve less teaching about spiders (although reading about, and interacting with spiders might be a launching point) and more listening to children talk about their experiences and feelings about spiders, and more meticulous observation of how children interact with spiders. And then it would involve sharing this documentation with the children, in much the same way as Doris shared her observations of the less value-laden topic of Sarah’s digging, and helped Sarah to look again at her experience.
What thinking skills support critical pedagogy?

When I asked Doris about her understanding of critical pedagogy, this was a new term for her, and her attention first went to process rather than content – the skills of thinking and questioning, rather than specific issues, values or structures to address:

… I thought, … like being metacognitive and getting the children to think about their thinking. And to reflect on it and to discuss – that I think brings to consciousness their thinking and also their questioning, so it helps them develop critical thinking skills and I think that’s part of critical pedagogy. So, instead of just telling them information to speed them along the process and make them bright, we need to develop their thinking skills and their questioning skills and their metacognitive skills I think. That’s how I understood it. So we want them to kind of search for meaning, instead of us giving them the meaning of things.

(Interview 2, March 2010)

Much of the work that we did to help children develop self-regulation and the motivation and skill to look closely supports them to engage in their own searches for meaning, as the following excerpt illustrates, from a class discussion that began with the question of the seeds that wouldn’t sprout:

Doris – …They haven’t started growing yet, and that’s what we’re wondering about, because every Wednesday we wonder about things, and I’m wondering why some are growing so fast, and others aren’t growing, that’s what I’m wondering about. (wait time) Does anyone else have anything they’re wondering about?

Sienna – How could seeds grow when they’re not people?
Doris – (repeated question) ‘How could seeds grow when they’re not people?’ …

Are people the only things in the world that grow?

Children – *Lots of chatter, enthusiasm. Some “Yeah”; some “No”.*

Isabel – *(to Sienna)* What about your pet cat, does it ever grow?

Sienna – Yeah.

Doris – What about you, do you grow?

Children – Yeah (lots of chatter)…. 

Doris – Right, so do rocks grow?

Children – No!

Doris – But trees grow?

*(Excerpt from transcript, April 2010)*

In this discussion, Doris modeled wondering and gave the children a formal invitation to wonder, in a context that offered the time and space and a climate of intellectual safety in which they felt comfortable offering their theories. At the same time, this discussion reveals the great scope for deepening of both young children’s understanding of their world and of their thinking skills, within concepts that adults often might consider to be finished or beyond debate.

Books also provided an opportunity for children to think critically. When Sarah and Sienna read *Ladybugs* during Readers’ Workshop, it was also a learning experience for me: an opportunity to better understand the critical thinking that they had to go through to make sense of what they were encountering. By the time we had finished discussing the book, I thought they understood that ladybugs went through metamorphosis, just like butterflies, but when they presented their learning to the class, it became obvious how challenging this concept was. They
had to try to fit together their existing understandings and experience with the new information presented in the book:

Rebecca (Teacher Researcher) – *(turning to page with large picture of cocoon)*

What’s going to come out of the cocoon?

Sarah & Sienna – Butterflies!

Rebecca – Okay, let’s see *(turning page)*. Oh, wait a sec.

Sienna – Ladybug? *(questioning voice)*

Rebecca – Hmmm, a ladybug.

Sienna – Why’s a ladybug in a cocoon?

Rebecca – Hmmm, that’s interesting.

Sarah – Because if it’s in a cocoon, it turns into a butterfly.

Rebecca – But it turned into a ladybug.

Sienna – Yes.

Sarah – It turns into a butterfly.

Rebecca – But this one turned into a ladybug, so I’m confused.

Sarah – Caterpillars turn into butterflies, why do caterpillars turn into ladybugs?

Rebecca – Okay, so caterpillars turn into butterflies –

*Monique, who had been listening nearby, joined the conversation.*

Monique – Maybe, um, it was a different bug and then it turned into the ladybug.

Rebecca – Oh let’s see. They look different don’t they, when they came out of the egg.

Monique – And then it turns into a ladybug.
Rebecca – So caterpillars turn into butterflies, black bugs turn into ladybugs – that’s what you’re thinking?

Sarah wanted to share her learning with the class, and she prepared by repeating “Ladybugs come out of cocoons, just like butterflies” several times, as she continued to look at the book. When book time was over and we met on the carpet, and it was finally time to share, Sarah and Sienna went up to the front, and Sienna proudly announced:

Sienna – Caterpillars come out of cocoons.

Sarah – Yeah.

But a simple comment from Doris gave them the chance to rebuild their fragile thinking.

Doris – So it’s not just caterpillars that turn into butterflies.

Sarah – No, some – ah – ladybugs come out of cocoons.

Doris – *(with amazement)* We can see that by this book! *(excerpt from transcript, June, 2010)*

These examples demonstrate how Doris and my expectation that children would think about and try to resolve questions that were confusing to them provided the opportunity and the confidence for them to practice the thinking skills that are an important part of the open-mindedness and flexibility of thought of critical pedagogy. According to Ritchhart (2002), “[teacher] expectations initially act as external stand-ins for students’ own inclination toward thinking. Over the course of the year – through ongoing reinforcement, encouragement, and repetition – students gradually internalize these expectations” *(p. 57)*.

4. **Learning across the curriculum (100 Languages of Children).**

Many – if not all – of the examples of children’s learning and experience presented so far, can be tied to learning in one or several of the six formal curriculum areas of the Kindergarten
programme in Ontario: Personal and Social Development, Language, Mathematics, Science and Technology, Health and Physical Activity, and the Arts (Ontario Ministry of Education). Because language and mathematics are high priority curriculum areas in Ontario, and also areas that can and should be integrated across the entire curriculum, I think that it is useful to explore in greater depth the reciprocity between our critical place-based approach, and learning in language and mathematics.
This excerpt from our documentation represents – not just to outside readers, but to the children and to myself and to Doris – the reciprocity between children’s experiences in the natural world, and their growing confidence and skill as readers and writers.
In April, we introduced Nature Books, small notebooks that the children could bring outside to record their observations. These became very popular, with children reminding the teachers to bring them out whenever we planned a different activity – perhaps this is because they were a personal and unique record of discoveries made on the spot.

| We read a book called Edward goes Exploring. |
| We decided to be like Edward and start |
| Our own Nature Spy Books. |
| Outside, we looked, we saw, we drew, we wrote, we wondered... |
| (Excerpt from documentation, April 2010) |

These Nature books provided an anchor to focus children’s attention on nature, as previously discussed. They also provided an integrated and motivating opportunity to develop writing skills, as Doris observed:

Because I found when they wanted to record some of their findings, they were so keen to take their nature spy books outside and start to write, and to write, and then they were curious to ask and to sound out the words, anyone who was around them to support them with their writing. It was natural for them to ask, whereas in the classroom, ‘oh I can’t get this one’, there’s more of a kind of impatience with not knowing, but outside they wanted to know, so ‘how do you write this?’, or ‘how do you do this?’ (Interview 3, June 2010)

This is not to say, however, that the children did not write productively inside, and particularly so after we returned from our Nature Spy time. With different degrees of teacher support, work ranged from simple recounts of what they had seen, to more nuanced theories and
questions. See for example, five year old Sienna’s ant hill in Appendix B-4, five year old Cara’s account of the chocolate mud puddle in Appendix B-5, Isabel’s discovery of an aphid in Appendix B-6, and four year old Isaac’s recount of a debate over a potential dinosaur bone find in the school grounds in Appendix B-7. For these young children, many of whom are just beginning to control the physical task of bringing pencil to paper, and most of whom are still learning to connect sounds with letters, the experiences that they had just had outside – recent, based in their growing relationship with each other and the natural world, and curiosity-arousing – provided the motivation to attempt and stick with the challenging task of writing.

In a similar way, children’s motivation to learn more about the natural world drove them to the book area, and to a growing enthusiasm for reading, as Doris noted at the third interview:

They feel that if they do want some information, they’ll go check a book. Certainly they got that message, because they found some really neat stuff in books, so it’s been sort of validated, that yes if they have questions they can find, and even if they aren’t questions, they can learn some really neat stuff in books. (Doris, Interview 3)

This message about the power of books developed through constant modeling, both with the whole class and with individuals and groups of children. It emerged from a specific goal that Doris expressed at the first interview, of integrating the notion of wondering into her read-alouds. In this excerpt, Doris helped Ally to share her wonderings with the class after looking at a book about bees:

Doris – And then, Ally and I could hardly believe it. This bee worked so hard all day collecting pollen, and he visits so many flowers, you’ll never believe how many.

Children – I know, I know!
Doris – How many Ally, tell them?
Ally – All of them.
Doris – All of them. And do you remember how many they counted one day, and there was?
Ally – Two thousand. Two hundred.
Doris – 200 000 or maybe more. It picks up pollen, and then what I am wondering is, if it sucks up pollen in its proboscis, where does it store it in its body?
Sienna – In the middle.
...
Doris – Do you think it’s in the head, …
Children – No, No!
Doris – …thorax, or abdomen?
Children – Thorax, thorax!
Doris – Or maybe abdomen. We have got to find out! Today one of the things we’re going to do is look very very closely and maybe figure out some of those things we don’t know.
Doris – So we were just sharing this book about the bees because Ally and I were noticing that when we looked really really closely we learned about four new things, in that book, just by looking closely at the pictures. (excerpt from class discussion, June, 2010)

We also found that children’s experiences in nature, by expanding their background knowledge, deepened their understanding of the books they encountered:
Doris – I’m wondering if they would have got so much out of it, if we hadn’t been doing the nature spy so they have those connections.

Rebecca – The bulbs thing came up again today, in the squirrel book.

Doris – And I think that some of them didn’t know the name ‘bulb’ before either.

And I think that them actually planting the bulbs and having the bulbs, going through that process, I don’t think they’re going to forget that it’s a bulb, whereas if it was a picture in a book it wouldn’t be as meaningful.

Rebecca – So much of children’s literature has to do with nature. So there’s a lot that they get [from] that rich experience when they see it outside and then they bring it back.

(Interview 1, November 2009)

The many opportunities for genuine and rich conversation around questions about nature were also supportive of children’s oral language development, an important focus in kindergarten. Questioning children to help them express their thinking, singing together, retelling events, modeling correct language structures, and listening to children were all ways that Doris supported their oral language development.

**Mathematics.**

According to Cathy Fosnot and Maarten Dolk (2001), the goal of authentic mathematics instruction is for children to “mathematize” their world, which relies on math being grounded in context. When Sarah dug the holes for the sunflower plants, refining her understanding of size, her work had a purpose and a context that mattered to her. When Isabel was working to draw a wasp nest from which several branches were sticking out, she, and her friend Emily, had a reason to practice the basic skills of one-to-one matching and tagging, as she tried several times to count the branches.
Opportunities to count were often integrated into looking closely at different objects, as when Beatrice and Cara counted and compared the petals on different flowers. Measuring, patterning, sorting, and most importantly – opportunities to talk about what they were doing – arose often in the context of our time in nature.

The arts.

Visual art, music, and drama offered many opportunities for learning and expressing one’s learning. In Reggio Emilia schools, not only do children use a variety of media and methods to express meaning, hence the notion of the one hundred languages of children, but the very act of expressing works to deepen their own sense of meaning (Malaguzzi, 1993). We observed this, as the children, by looking closely, were able to see more detail and more depth.

Yet this kind of art is more complex, more open-ended, and more of a risk, than the art traditionally done in many kindergarten classes, as Doris commented at the first interview.

It was funny because, yeah, in another class they were doing handprints… sheep... And then I thought, this is the craft and they’re all doing the same thing. And I can’t rationalize doing that anymore, because it’s not meaningful. It’s true, when Mairead goes over there and she just cuts her own thing, and she’s busy making things, or Eli, that’s real art now. I can’t go back to that cookie cutter style that we used to do in kindergarten… (Interview 1, November 2009)

Over the course of the year, the children spent longer at their drawing and painting tasks, more able to look closely at the details of what they were representing, and more willing to do a second or third try if they were not satisfied. Their repertoire extended into music and sound, as when Isaac sang to the plants, and to drama, as when Ally and Claire spontaneously enacted the sad tale of a sunflower plant that had not been transplanted in time.
The effectiveness of children’s learning across the curriculum, and of this critical place-based project as a whole, has depended on a shift in the teacher’s relationship with the children and with nature. This part of our journey is the topic of the next chapter.
CHAPTER 5: FINDINGS AND ANALYSIS

GOING FURTHER: CHALLENGES AS OPPORTUNITIES

Introduction: The Challenges of Critical Place-Based Learning in Kindergarten

In Chapter 4, I focused on describing the successes – the rich, joyful, learning that this project opened up for Doris, me, and the children. Yet, as I reflected on the work that Doris and I did over the past several months, I also wondered if there were things we could have done differently that would have helped the children to build an even closer relationship with nature or with each other, or that would have helped them to develop a more critical stance, or that would have been more supportive of developing children’s own capacity for self-regulation – because, like any learning journey, we experienced challenges alongside the successes. Those challenges are the focus of this chapter. They are organized into several themes: (1) time and logistics; (2) the formal curriculum as both a real and a perceived barrier to teacher agency; (3) the process of accepting new roles and learning new skills; and (4) the issue of emergent curriculum and equity.

1. Time and logistics.

Time was a challenge in different, surprisingly complex, ways. First, Doris expressed a sense of lack of time in the classroom with the children; secondly, there was a lack of time for planning, reflection, and collaboration. Further, the way that Doris perceived and understood time as a challenge itself impacted on her management of time, and of the learning journey itself; and Doris’ and my understanding of time, as a genuinely complicated issue, changed over the course of the project.

The complexity of the time issue is reflected in the shift in Doris’ attitude toward time, when I asked her about the barriers preventing her from spending more time in nature with her classes. At the first interview, her focus was on classroom time:
The barriers are time. That’s the only barrier. If we moved into a full day kindergarten, this would be a natural part of the process and part of the programme that happens much more regularly. But really, because two of the days we have gym for half an hour, and we have another two days that they go into another class for half an hour, there’s not much time. And right now, there’s assessment, so it’s really a time factor. (Interview 1, November 2009)

In contrast, by the second interview, Doris’ focus was on teacher planning and reflection time, and simply the time it takes for a teacher to begin to learn, adopt, and get comfortable with something new.

… Every time we sit down on a Wednesday to talk for 5 minutes, an hour later we’re saying we haven’t finished what we wanted to talk about. It takes a long time, so I think time is a big factor. It takes time to shift thinking. You have to reflect and you have to read, and you have to work collaboratively and you have to kind of nudge each other… if I was on my own, quite frankly I’d be working at a much slower pace. (Interview 2, March 2010)

And by the third interview, Doris expressed a stronger commitment to prioritizing nature time:

[Kindergarten is] only half a day and with all the interruptions, (pause) but given that, and given that we’ve forged through, and seen the value of it, I would like to – I think I’ll be better at having it continue on, on the days that aren’t nature spy days. (Interview 3, June 2010)

Early on in the project, the issue of time served almost as a way of releasing the teacher from making a commitment to change her practice. But, over the course of the project, as she honestly and genuinely explored her own priorities and values, Doris was able to see the barriers or
challenges we faced in a different way – to look inside rather than just outside – and to challenge her own practice. Time for reflection is important. It is through reflection and collaboration that Doris came to reprioritize time in nature, as she expressed in the third interview. The power of collaboration will be explored in greater depth in Chapter 6.

Yet, this is not to deny the complicating reality of lack of time in the classroom. Throughout the course of the project, Doris often found it challenging to carry out tasks over the week that connected to our Wednesday nature time. In fact, the failure of the seeds to germinate that was described in Chapter 4 was probably not as mysterious as it first seemed – but due quite simply to a lack of watering.

Perhaps, as Doris mentioned, when full day learning comes to all kindergarten classes (beginning in September 2010, and expected across the province by 2015), it will be easier to find the time for outdoor learning, but in the meantime, the challenge of lack of sufficient time to do it all means that it is essential for teachers like Doris to bring great intentionality to selecting her priorities, to planning for integrated learning and to reorganizing what happens in the classroom (DuFour, Eaker & DuFour, 2005). The issue of time is closely related to the expectations set out in the formal curriculum. This is the focus of the next section.

2. The Ontario curriculum: a barrier to teacher agency?

It is important to anchor our project in the curriculum document for the Ontario Kindergarten Programme (2006). The six specific curriculum areas are Personal and Social Development, Language, Mathematics, Science & Technology, Health & Physical Activity, and the Arts. The curriculum document describes learning through inquiry, learning in real-life contexts, integrated learning, and learning through exploration. The following excerpt represents the expected approach to developmentally appropriate teaching and learning in Kindergarten:
Kindergarten programs need to consist of a balance of investigation or exploration, guided instruction, and explicit instruction. Kindergarten children need many opportunities to investigate and explore. These experiences allow children to build on their existing knowledge, create and clarify their own new understandings, and experience a variety of approaches to a problem or question. In investigation and exploration, children’s autonomy is high, and teachers should observe, listen, and question in order to provide the children with the support they need using the instructional strategy of scaffolding.

(Ontario Ministry of Education, 2006, p. 11)

In the Science strand, the Overall Expectations are:

A. demonstrate an awareness of the natural and human-made environment through hands-on investigations, observation, questioning, and sharing of their findings;

B. conduct simple investigations through free exploration, focused exploration, and guided activity, using inquiry skills (observing, questioning, planning an investigation, carrying out the investigation, and communicating findings);

C. demonstrate an understanding of and care for the natural world;

D. investigate and talk about the characteristics and functions of some common materials, and use these materials safely;

E. recognize and use safely some common forms of technology. (p.50)

The emphasis throughout the document’s sections on learning and teaching is on teacher as listener, observer and facilitator, and child as active participant and meaning maker (Ontario
Ministry of Education, 2006). According to the Kindergarten curriculum document, the emphasis in assessing children should be on observation:

Observation, as well as the documentation of observations, is the most important method for gaining assessment information about a young child as he or she works and interacts in the classroom. Observation should be the primary assessment strategy used in Kindergarten. (Ontario Ministry of Education, 2006, p. 9)

The Curriculum document refers to thinking skills that are linked to critical literacy, critical thinking, metacognition and reflection; this description resonates with Doris’ understanding of critical pedagogy:

Children also need many opportunities to pose and answer questions, participate in discussions, and classify information in order to develop their capacity for metacognition and their ability to use higher-order thinking skills involved in critical thinking. For example, after reading about a social issue that is important to children, the teacher may say “Someone wrote this text. Who is it written for? Let’s look at it from the point of view of…” (p. 17)

An examination of the Curriculum document reveals many points of similarity with the theory and philosophy of learning in nature, emergent curriculum, and critical place-based pedagogy. The term “emergent curriculum” is not explicitly contained in the document; however, there is little that conflicts with an emergent curriculum approach, and much that supports it. So why does it feel to teachers like Doris that the curriculum is a barrier to critical place-based pedagogy?
In our planning sessions and informal conversations, Doris often made reference to the number of expectations that could be addressed through nature: shapes, colours, and patterns could all be taught through nature; reading and writing revolved around nature experiences. Doris’ mentions of assessment as something that took time away from learning outside became less pronounced as the year progressed, presumably because, even at reporting times, she was able to rely more on observations of what children did and said, in the context of their regular activities both outside and inside, than on sit-down checklists.

Yet, as the following conversation from the second interview reveals, Doris expressed both a sense of struggling with the curriculum, and a recognition that she was also struggling within herself. This conversation evolved from a discussion of the ways Doris might bring critical pedagogy into her classroom programme.

Rebecca – Are there ways that it [critical pedagogy] can be embedded in the programme? … Rather than a specific project?

Doris – You mean the critical pedagogy? I think that’s the ultimate goal that we would want. I think, … I think the shift in our thinking right now and I think we’re in the process, but I don’t know how much it’s embedded. What do you think, do you think it’s embedded? I don’t know, if you look at our curriculum document, in kindergarten, I wonder how much it’s embedded? (pause) I’ll look at it.

Rebecca – Is the curriculum document contrary to teaching critical pedagogy, or is it just not there?

Doris – No. It just doesn’t raise it. It doesn’t facilitate it. They encourage of course, an activity-centred approach, so [an] activity-centred approach of
course lends itself to critical thinking in the different stations, so of course it doesn’t detract from it, but if it doesn’t mention, it doesn’t mean that it’s going to be done. So that’s an interesting point because that’s probably a direction that we could go in, in terms of having it mentioned. Because I mean, even emergent curriculum is a new word, and if we don’t, we have to shift our thinking first before we’re going to shift our actions I think.

Rebecca – [Do you mean] as teachers, or as [boards / ministries / systems]?

Doris – As teachers.

Rebecca – What are the biggest challenges you’ve experienced in this project so far?

Doris – Well, I think there has to be – one of the biggest gaps is in the thinking.

There has to be a change in the thinking in terms of creating a play-based approach. (Interview 2, March 2010)

I was surprised that Doris’ first response was to consider the curriculum document rather than her own practice. As described in Section 2, it seemed to me that there were numerous ways in which our weekly time outside constituted critical pedagogy. Perhaps the way I phrased the question impacted her response, yet Doris seemed to be curiously tentative in expressing a recognition of her own agency as a teacher, that her practice was not merely defined by the formal curriculum. Eventually, she articulated her own role in changing her teaching practice:

We’re challenging our thinking. We’re challenging our practice. Maybe it’s entrenched to a certain degree. So therefore, I would say that, that’s the area that we’ve had to – well sometimes it’s easier to carry on just the way you’ve been
Doris further referred to the importance of external expectations in defining teaching practice, referring to a new TDSB alternative school, “[Look at] Whole Child School where they’re outside every day. Because you have to shift your thinking in terms of values too. If it’s just an expectation, you don’t question it.” (Interview 2, March) External supports and expectations are important to defining teaching practice, and that is also the power – for better or for worse – of the curriculum expectations. Yet, as Scheinfeld, Haigh and Scheinfeld (2008) emphasize, external supports must not take the place of the teacher’s own sense of agency.

According to Scheinfeld, Haigh and Scheinfeld (2008), underlying every aspect of teacher professional development for Reggio-inspired teachers, is the development of a strong sense of personal and professional agency. Just as a sense of agency is essential for children, it is essential that a teacher:

- experienc[e] oneself as an active, self-directed agent who can, individually and in collaboration with others, formulate personally meaningful learning goals,
- figure out strategies to achieve them, engage the world to pursue them, construct understandings, and communicate the newly developed understandings to others. (Scheinfeld, Haigh & Scheinfeld, p. 60, 2008)

It is useful to recall Janet Dyment’s (2005) study that showed that only 5% of teachers at TDSB schools that had “greened” school grounds, were using their outdoor space regularly for teaching and learning. This study emphasizes the difficulty of changing teaching practice, and in particular the difficulty of changing teaching practice in relation to nature and the natural world. As DuFour, Eaker and DuFour (2005) write of professional learning communities generally,
“even an idea whose time seems to have come can lose momentum when colliding with the traditional beliefs it challenges, particularly when those beliefs continue to go largely unexamined” (p. 11). Mary Jeanne Barrett (2007) suggests that teachers of environmental education face unique challenges that go beyond structural barriers like time and curriculum, or barriers relating to skills or even motivation. Barrett describes the dominant North American cultural relationship with the natural world as a sort of cognitive imperialism, such that “dominant discourses of what gets to count as legitimate knowledge may be working in very insidious ways to undermine the very possibility of even a motivated teacher teaching environmental education” (p. 219). In particular, “dominant discourses and contradictory subjectivities that simultaneously produce teachers as gendered, professional, and human mean that they have little access to the subject positions that would enable them to enact a pedagogy of love vis-à-vis ‘Land’” (pp. 215-216).

From this perspective, Doris might tend to exaggerate the barriers to learning in nature posed by the Ontario curriculum, and also to minimize the opportunities it affords, reflecting her own culturally-imposed discomfort with literally stepping outside the classroom norms. Yet over the course of the project, Doris’ perception of barriers and in particular her comfort with challenging them shifted, as reflected in the following comment from the third interview, as she reflected on her plans to make learning in nature a bigger, more integrated part of her kindergarten programme:

Now next year I’m trying to formulate in my mind how to do it, whether we’ll do one day a week. I think it’s good to set one day, but I’d like to intertwine the art and some of the different things and the different learnings, I’d like to have more overlap. It’s only half a day and with all the interruptions,… but given that,
and given that we’ve forged through, and seen the value of it, I would like to, I
think I’ll be better at having it continue on, on the days that aren’t nature spy
days. (Interview 3, June 2010)


Here I focus on the shifts in Doris’ practice over the course of the project. As suggested
above, change itself is a challenge. I explore how Doris experienced the challenge of taking on a
new teaching role and of seeing children in new roles as well; the challenge of a new kind of
planning tied to documentation and reflection; and the challenge of organizing the day and the
week.

New roles of teacher and children.

The critical place-based pedagogy that Doris and I were working to implement brings
with it new ways of looking at the purpose of education and the roles of children and teachers
(Gruenewald, 2003; Smith, 2007; Stevenson, 2008). I found parallels with this critical place-
based pedagogy in the Reggio Emilia-inspired emergent curriculum approach, that has a
particular focus on young children (Lewin-Benham, 2006; Scheinfeld, Haigh & Scheinfeld, 2008;
Wien, 2008) and other related work on socially critical pedagogy with young children (e.g.,
Aasen, Grindheim & Waters, 2009).

Emergent curriculum requires teachers to commit to an image of the child that is often in
contrast with that of traditional schooling, a new image in which the child is “strong, rich and
powerful” (Scheinfeld, Haigh & Scheinfeld, 2008; see also Malaguzzi, 1993), with capabilities to
be encouraged rather than deficits to be corrected. Throughout the course of the project, Doris
was strengthening her image of the child as naturally curious and the role of the teacher as
supporting that natural curiosity.
… I would think that the biggest thing is the development of natural curiosity, and for me it’s the nurturing of that. Because I think that in the old system we felt that we were put here to teach them certain skills in kindergarten, academic skills, and now we’re thinking that the academic skills will come – that I think where it comes through learning in nature [is] through their own curiosity. (Interview 3, June, 2010)

Doris’ comment further suggests a connection between a focus on academic skills or content and on a deficit based image of children. That is, if teachers focus on content, we will see much that young children do not yet understand, but if teachers focus on process, on how children think and relate to the world, there is great richness and diversity to observe and to support (see also Scheinfeld, Haigh & Scheinfeld, 2008).

The challenge for myself and Doris was to get beyond simply saying that we believed in a positive image of children to really and consistently seeing this image in our interactions with all children, and then envisioning how to help them push their learning further. Some of our successes were described in Section 2; the following exchange from mid-June also reflects a success. As you read it, you will see much that Doris has done to help support Jason’s independent thinking and natural curiosity; but like so many of our experiences in nature, it also represents a challenge – for the reader will also see the opportunities for deeper and longer learning that were not explored:

Jason – Me and Isaac just found a rock in a tree stump!

Doris – A rock in a tree stump! Will you show it to me?

Jason – Yes!

…Doris – What do you think it is?
Jason – A rock.

Doris – Just [a rock?] How do you think it got into the tree then, do you think?

Jason – I don’t know. Maybe there was a rock around the tree first, and then they put the tree there, and [it grew] a little bit, there was rock there, and the rock must have grown to the top.

Doris – That’s interesting. Can rock grow, do you think?

Jason – It’s a little… I mean like the tree grew it up, to make to make the tall tree grow up with it, like that.

Doris – Jason, take your fingernail and just go like this a little bit and see if it feels like rock.

Jason – It feels like wet stuff that breaks apart.

Doris – Yeah, so do you think it might be rock or do you think it might be something else?, because scientists …

Jason – I think it’s [something]?

Doris – But isn’t that interesting, you were right though it does look like rock, and it’s two different colours, but if you use your finger it doesn’t act like rock because look at how soft it is… What do you think now, after you’ve moved your finger over it?

Jason – I think it’s dirt, [it’s not] rock.

Doris – So you did what scientists do, Jason, scientists look at something and they think about it and then they change their thinking after they do experiments.

Doris and I reflected on this situation during our conversation at the third interview:
Doris – Jason when he found that – the tree trunk stump there. First of all in the winter he thought it was ice or cement that was frozen in, and then he came in the spring, and he saw it, the last time I think it was, and he changed his mind and he said it looked like stone, well to me I could see that it was kind of mossy, so I said, well, take your finger across it like this and let’s feel it, and then ‘oh’, he said ‘it’s not rock’, he could see that his finger had made an indentation, you could actually carve your name in it if you wanted to, … so that was something -- ‘hmm it wasn’t rock, what else could it have been?’ whereas instead of me giving out ‘oh it’s moss’.

Rebecca – So did he ever come to know that it was moss, because sometimes that’s what I struggle with?

Doris – Where do you give that?

Rebecca – When do you find out, and maybe it should be something that could take three weeks of looking it up in books, and how do you incorporate that into your classroom activities to make sure that he ends up finding out that it’s moss. Or does it not matter? Or is it…?

Doris – Those are the questions I haven’t answered yet, and I – and it’s always a question of wondering how long a person should wait, or how long a person should wonder. I don’t think they actually used the word moss and decided that’s what it was, it was just soft and it was something that grows on there, and I felt well, and I think that it’s probably good for them to go back, it might be one of those things that a person can discuss. (Interview 3, June, 2010)
This situation and our conversation reflect Doris’ and my emerging understanding of how emergent curriculum can be a vehicle for a critical place-based approach to learning. Yet our conversation largely centred around content rather than process. How can we, as teachers, see, beyond the fact that Jason doesn’t recognize moss, and instead see what he is doing? Jason may not be aware of moss, but he has developed an interesting theory about how a rock might be carried up with a tree as it grows. He has an avid sense of discovery and curiosity, and in other situations, especially when he is drawing objects he has found, he has shown himself to be very able to look closely. How can we as teachers use this situation to help him become even more independent in his discoveries?

Such a lens widens the possibilities for learning. To most traditional kindergarten teachers, it doesn’t really matter whether children can identify a stingray from an ant or an earwig, as Andrew and Ally tried to do, or identify moss like Jason. To place-based educators, this is somewhat more important. And, I would argue that, to place-based educators whose aim is to develop in children a sense of agency and self-regulation, it becomes particularly important to help them use their skills to resolve the questions that are meaningful to them, whether that be learning about stingrays, putting a name on moss, understanding the life cycles of ladybugs and butterflies, or foraging for dinosaur bones.

The challenge for Doris and myself is partly about changing our attitudes towards what curriculum is and who defines it, issues around the roles of teachers and children; and it is partly, and relatedly, about learning and using a new set of skills or teaching strategies. These are skills that were not needed when the teacher defined all the learning, but if the children are to play a leading role in defining both the processes and content that they learn, then as teachers, we need to find ways of listening and observing that allow us to hear and see children better.
Doris often used the strategy of questioning to help support children to refine or revisit their thinking, to look closely or to make connections to something else they know. In the following excerpt from the second interview, she described the power of questioning, and she also reflected on the need for a shift in attitude, beliefs and practice not only among teachers but also among Kindergarten educational assistants like Rita.

It’s interesting because you need to have the right attitude, because the assistants have been used to kind of supporting their learning and doing the cookie cutter stuff, so what they need to be is just to stay there at that table to support them, but not to give the direction, but yet to be assisting, in like you say, looking closer, “so what are you looking for?”, “what do you need?”, “what shape would they be?”, (Interview 2, March 2010)

Further, Doris recognized repeating or rephrasing children’s words for them as an important strategy for developing their thinking.

Skills like these are tied to looking and listening closely to what children are doing and thinking, both in the moment and also over time, so that if it will take a journey of three weeks or longer for Jason to discover moss and to deepen his own skills of observation, then the teacher can tap into and build on his ideas and energy for learning over time. In Reggio Emilia-inspired classrooms, documentation is both an idea and a practice that supports observation, reflection, collaborative planning, and assessment.

**Planning, reflection, and documentation.**

Throughout the project, amidst many rich learning experiences, Doris and I also struggled with the sense that there was something deeper and richer just waiting for us to unearth it. We often attributed our inability to grab onto this experience to lack of sufficient time to plan. But as
suggested above, a bigger issue may have been that our understanding of how to plan effectively was still developing. A missing link was our use of pedagogical documentation, a cornerstone of Reggio-inspired emergent curriculum.

Near the end of the project, a special issue of the journal *Theory into Practice* (Volume 49, #1) focused on democracy and documentation. As the project drew to a close, these articles helped me to see documentation differently, as a much more powerful link connecting observation of children with reflection and planning a curriculum that really emerged from children’s interests and abilities, and that could support our sense of critical pedagogy as developing children’s self-regulation, agency and independent thinking. Falk and Darling-Hammond’s (2010) description of documentation resonates with the purposes and practices of critical place-based pedagogy: “documentation is not only part of an approach to effective teaching, it is part of a broader view of education that sees learning as a negotiated experience between learners and their environments” (p. 74).

At the end of January, when Doris and I attended the workshop *A Pedagogy of Relationships*, we visited classrooms that followed a Reggio-inspired approach, and were inspired by many things, in particular the use of documentation to reflect the learning that had gone on in the classroom. Of course, without children present, what we saw was the static documentation at the various centres and around the classroom, and we began to use this as a model for exploring our own use of documentation.

By the second interview, our conversation about documentation reflected some of its power but also some of its limitations in the way that we were using and understanding it. Much of our conversation focused on using documentation to share experiences with children and parents, and also on logistical issues around whether to keep the documentation in the classroom.
on clipboards or in the hallway on the bulletin board. While these are important issues, it is important to notice that we were at first less focused on how we might use documentation to guide planning and teaching – on ensuring that the opportunities for reflection and metacognition provided by documentation were being fully explored. Later in the second interview, I tried to seek out more depth from Doris:

Doris – So the documentation is – I can really see the validity of it. When I went to [a school where the Kindergarten teacher has been using a Reggio Emilia approach for several years] and when I saw the first part of her documentation it was something to do with butterflies, and I was thinking “how do you do this in the regular classroom, and why is it so important?” and now I can see it. Rebecca – So what is the validity? There’s the parent connection that we’ve talked about, but what else? Doris – I think the other point is that it encourages metacognition. That one I was a mentioning to you about Andrew gently putting the blocks away, so it then becomes a teaching tool, so acknowledging the how of doing something, the procedure. So when Andrew will be thinking next time, because if we put those words in their heads and say “oh how gently you’re doing that, Andrew”, he’ll do it gently. (Interview 2, March 2010)

Yet, Doris’ comment elucidates one of the challenges that I think constrained the effectiveness of our use of documentation:

One of the most common misinterpretations is to understand documentation as a strategy to teach better what we as teachers already know. Instead, documentation needs to be a way to get to know better what the children, in their own way,
already know” (Sandra Piccinini, interviewed in Turner and Gray Wilson, 2010, p. 8).

In particular, if the purpose of place-based pedagogy is to empower children to make changes in the places and problems that are meaningful to them, then it is important for teachers to use documentation to gain access to children’s thinking – whether it be related to the what or the how, the content or the process – and not to impose our own. Returning to Doris and my conversation reveals more opportunities for our own learning in using documentation, specifically to support planning:

Rebecca – Do you think the documentation has any benefit for the teacher in terms of planning and in terms of accessing that emergent curriculum?

Doris – For sure. Because at the end of the day, the hectic day, if you haven’t got a picture to remind you, and to make connections, like that connection with the snowman outside and what Sienna was doing and then going into procedural writing – would not happen. There would be no continuation. So I think for continuation purpose, it helps support blending one day into the next. And that becomes your theme, whereas before it was we planned everything, we set up the theme for the month or three weeks (pause), but how do we continue the process from one day to the next?

Through documentation I think helps us, otherwise it gets lost. (Interview 2, March)

My research journal further reflected my concern about how effectively we were using documentation and whether it was really helping to push forward the children’s learning, rather than just forming a nice memory:
Doris read documentation [from previous week] to [the] children saying “Isn’t that nice?”, “Isn’t that neat?”, and “Then we can remember it”. How can we use the documentation more effectively to help move children from one idea or one way of thinking or activity to another, or to build on their own and each other’s learning? (Research Journal, April 2010)

Motivated to gain a better understanding of using documentation, I saw an opportunity in the children’s interest in our seeds that did not sprout. With great intentionality, I strove to use documentation – both the formal documentation that Doris and I shared with the children, and my observation notes and research journal entries – not to recall completed learning but to make learning visible to myself, Doris, and the children; and to use it to support our decisions about what opportunities to provide to the children over the period of about a month.

The children planted pea, sunflower, and lettuce seeds in soil at the end of March, but after a week, many of them had not shown any indication of sprouting. We had our first whole class discussion about this problem on April 7, and the children expressed many insightful theories.
In my kindergarten class the year before, we had successfully planted lettuce seeds, and Isabel recalled this, and asked whether we had used the same kind of soil. The following week, to follow up on this theory, and other children’s theories about the size of the pots, we planted a new batch of seeds in a larger container with the same kind of soil I had used last year. However, the issue of water was brought up mainly by the teachers, but few children had expressed much concern about water and humidity. Since evaporation was something we had spent a lot of time on in January, with children excitedly noticing that the level of water in the water table went down over several weeks, we wanted to help them make the link between the two situations. So, guided by the documentation, we planned the next activity, a visit to the Grade 1 classroom, where seeds had been planted in an indoor greenhouse with a lid, and almost all the seeds had sprouted in a few days. While we were upstairs in the Grade 1 room, I struggled with the feeling that I was pushing my own theory on the children, as my research journal indicates:

Inside, we looked at our seedlings.

Five sunflowers have sprouted.

One pea has sprouted.

None of the lettuces have sprouted.

We wondered why not.

Is it too much water, not enough water, the wrong kind of soil (Isabel), or not enough space, or should we just keep waiting (Jason)?

We thought and thought, and finally, the class decided to try planting some more lettuce seeds in a big pot, with a different kind of soil.

(Excerpt from documentation, April 14, 2010)
Gardening as natural science process – e.g. our seeds did not all sprout, so we went through the process of trying to find out why. … I wanted children to notice lid and humidity and felt that I was pushing for a specific answer and they weren’t giving it. (Research Journal, April 2010)

Even so, by the time we returned to the classroom that same day, the children were expressing numerous (yet sometimes contradictory) theories. In particular, I noticed that the children whose ideas were most insightful and relevant were the Senior Kindergartners – the five- and six- year olds.

In their recognition of the role of the greenhouse lid, the children’s theories did reflect a developing awareness of the importance of water and humidity for seeds to sprout and grow. Jason wondered whether exposure to the air was a problem, and several children suggested that our seeds were getting too much sun, implying a recognition that they were drying out (however, four-year old Mairead wondered if they weren’t getting enough sun).

The following week, I wrote out on chart paper the children’s key questions and ideas expressed throughout the seed project and in particular in the post-Grade 1 class visit discussion.

My aim was to use their ideas as a jumping-off point to decide what we should do next. Then, as we decided to replant the seeds in a tray with a lid, to try to predict what would happen. The aim was to

<table>
<thead>
<tr>
<th>Why aren’t these seeds sprouting?</th>
</tr>
</thead>
<tbody>
<tr>
<td>How do plants grow? (Sienna)</td>
</tr>
<tr>
<td>Is it the right kind of soil? (Isabel)</td>
</tr>
<tr>
<td>Will a lid help our seeds sprout, like the grade ones? (Isabel)</td>
</tr>
<tr>
<td>Maybe the air makes them not grow. (Jason)</td>
</tr>
<tr>
<td>Will a black container help our seeds sprout?</td>
</tr>
<tr>
<td>Do our seeds need more sun – a bigger window? (Mairead)</td>
</tr>
<tr>
<td>Do our seeds need less sun? (Emily &amp; Sienna)</td>
</tr>
<tr>
<td>Maybe the sun likes black, but not clear. (Isabel, Michelle, Mrs. I)</td>
</tr>
<tr>
<td>Do our seeds just need more time? (Cara)</td>
</tr>
</tbody>
</table>

Documentation chart, April 2010
help children to link their knowledge and experience from various different contexts together,
within the specific context of developing an understanding of the importance of water and
moisture for seeds to sprout.

Once we decided to replant the seeds in a greenhouse with a lid, I again tried to use
formal documentation to keep the children’s questions fresh in their minds, to continue to push
their understanding, and also to reveal to them their role as active learners and decision-makers.
Here is the final excerpt from documentation about the seed problem, which we read to the
children a week after we planted seeds in the greenhouse:

We wondered about our seeds. Why did so many seeds NOT sprout?

Jason thought they got too much water.

Some people thought they didn’t get enough water.

Madeline said “Let’s put the seeds in a tray with a lid”

So, Jason, Andrew, Matthew, Sienna, and Emily helped plant new sunflower seeds in the
special tray with a lid. (Nathan's grandpa gave it to us!)

We thought about how our other seeds were always dry, and they didn't sprout.

Michelle [SNA] remembered how the water in the tray went up into the ceiling.
[referring to the water table experiment we had conducted in January]

We thought that if there’s a lid, the water will stay in.

We hope this is a good thing....

Sienna worried, "How can the seeds grow if they hit the ceiling of the lid?"

We will look at our seeds very carefully, and see what happens.

(Excerpt from documentation, May 2010)
The seed problem represented something of a shift in terms of using documentation to guide learning over time. But, perhaps because of time pressures, perhaps because of the power of the traditional experience of the teacher working alone in the classroom, and perhaps, relatedly, because of a shared notion that this was only a small part of the classroom programme and there was no need for both of us to devote our energies to it – most of the poring over notes and pictures and considering what to do next took place on my own. According to Wien (2008), and Krechevsky, Rivard and Burton (2010), a large part of the power of documentation is in its potential to inspire rich collaboration by generating conversation and ideas amongst teachers.

I also wondered if, by writing documentation myself, I was taking away from Doris the opportunity to more deeply engage with learning experiences. We both postulated that if she were to write documentation herself, she might be better able to carry learning over several days or weeks, both through the process of writing the documentation, and because it would emphasize what was important to her in the children’s work, rather than what was important to me. In May, Doris wrote documentation describing the process of transplanting the sunflowers (parts of this process were described in Chapter 4). An excerpt from the documentation she wrote is included in Appendix C.

Writing the documentation was a challenge, partly because Doris was not experienced with importing pictures onto the computer. But when Doris read the documentation to the children a few weeks later, she was much more engaged, having written it herself. And she worked to engage the children in the documentation itself, asking questions like “Do you remember that?” and inviting Sarah to join in recounting the story of the too deep hole.

In my repeated reading of our documentation and listening to the transcripts of Doris reading to the class the story of transplanting the sunflowers, I am aware not only of Doris’
enthusiastic tone and warm joy, and, likewise, of the connections that emerged as we pursued the seed problem, but also of the opportunities that were missed. I can now see that in our effort to look at everything that happened, we failed to see many opportunities for rich learning – perhaps about the water cycle that emerged repeatedly in the seed problem and many other occasions, or about the issue of size that emerged as the children tried to dig holes that were not too big or too small for the sunflowers, and again as they looked for a stick that would be tall enough to support the tall sunflower.

According to Carter and Curtis (2008), documentation often intentionally leaves out the details of the teaching to present and promote an image of children’s initiative and self-sufficiency. And Scheinfeld, Haigh and Scheinfeld (2008), highlighted the importance of focusing the selection of items to include in documentation those that “show patterning across them” (p 138).

We also often missed some of the opportunities that engaging children in analyzing the documentation and responding to it might have offered for developing children’s own sense of agency. Rather than a static and finished document, documentation is meant to be a jumping off point, that can be shared with other teachers, and especially with children, to co-construct the shape of the learning experience. The following excerpt from the transcript of Doris reading the transplanting documentation to the children reveals how we often presented an image of documentation as closed, something to remember and look back on rather than to carry forward and continue to explore:

Doris – (reading documentation) “‘We thought and thought and used our fingers to help us’” –

Claire - “Maybe we could…”
Doris – “Claire, you’re going to listen right now, because this is what we did, we already did this thinking, ‘We thought and thought and we went Hmmm, and we said four and four makes (pause for children to join in) eight. So let’s put four in one pot and four in the other pot’.” (excerpt from transcript, June 2)

This subsection has highlighted our challenges in using documentation to bring to life a critical place-based pedagogy that really emerged from children’s experiences and ideas. It is important to place these challenges in the context of our own learning: in fact, according to Wien (2008), we were certainly not alone in our struggles and missteps:

…when North American teachers first try this complex process, recounts are what they tend to produce. Because they must first develop habits of using the tools of documentation, their focus is on getting those habits in place, and it is difficult at that stage to see further than recounts of experience. But once the habits of documenting are in place – observing children closely, taking photographs, studying the work that children generate, preparing these materials to share with children and others – then teachers in schools can take their documentation further into attempting to make children’s thinking, their theories about the world, visible to others. (Wien, 2008, p. 10)

In particular, the issue of what children seem to accomplish during our time outside was a recurring one for Doris. Over the course of the project, she became much more comfortable with accepting a degree of uncertainty in what children might do:

And because they’re not totally coming up with an answer, or maybe seem totally focused, doesn’t mean they’re not getting something out of it. They’re still experiencing every week that time with nature. (Interview 3, June)
Similarly, the type of play that children engaged in was important, for certain kinds of play are
considered acceptable while others are not. Doris often reminded the children, “We don’t play
when it’s Nature Spy time” (Doris, excerpt from transcript, March 31). It wasn’t just the built
play structures – that were clearly out of bounds – but also the sort of child-child play that often
involved chasing each other. I wonder whether there might be space – pedagogically, and
socially, to support this kind of outdoor play? My question is here because it relates to Doris and
my capacity as teachers to accept the uncertain, unclear benefits of this kind of play, to accept the
uncertainty that it brings to the classroom – if running around is allowed, then where are children
to draw the line that defines appropriate school behaviour?

But perhaps the challenge is not to be more relaxed about measuring what children do,
but rather of measuring by a completely different scale – not the teacher’s scale of whether the
child is coming up with an answer, but the child’s scale – of whether he or she is achieving his
goals, answering her questions: this requires close and patient listening and looking to understand
what it is the child is interested in, and what he or she is trying to do, and rewriting the classroom
agenda to serve the children’s interests.

Again, time is a big part of the challenge of documentation, not only time for
collaboration and time for children’s experiences inside and outside, but also simply the time it
takes for our eyes to adjust, to internalize the new skills of listening closely, looking again, seeing
connections and patterns, to push our own boundaries, and to do this in collaboration with each
other and with the children.

Emergent curriculum does not require less planning, but a different kind of planning, and
planning shifted in time and focus – from before to during, from Curriculum documents to
curriculum of the place and the child. And documentation is the mental habit (Turner & Gray
Wilson, 2010) that allows teachers to do it: documentation as teacher research (Falk & Darling-Hammond, 2010; Wien, 2008) allows teachers to “provide active learning opportunities, using what they learn from observing learners’ actions and their work to create curricula that extends learners’ prior experiences and understandings” (Falk & Darling-Hammond, 2010, p. 74).

There is a sense that rigorous assessment is in conflict with documentation, as Doris expressed in the third interview:

Because we’re so used to the evidence now, everything is evidence based, they want some kind of product, they want a rubric to show and for you to look at the child and to figure out where they sit on the rubric are they a 1, a 2, a 3, or a 4? (Interview 3, June 2010)

The conflicting views expressed by Doris and by the articles referred to above suggest a need for further exploration of the issue of documentation specifically for assessment, in the context of formal curriculum policies like in Ontario.

Before I conclude this section, I want to return to a comment Doris made at the second interview:

Once a person has launched into emergent curriculum, and allowed the children to be a part of the direction that you go in, I don’t think, I just don’t think you could go back. Because it’s so much more interesting and it’s so much more real.

(Interview 2, March, 2010)

The power and potential of documentation was already being felt so profoundly at this point in the project. Doris’ comment reinforces how much more real it will be when the power of documentation allows the children to take an even greater role in determining where to go and what to do!
Organization.

Two important issues are addressed here: first, the development of routines to support learning, not only outside, but also learning inside the classroom that is supportive of the thinking and learning skills that are important to a critical pedagogy of place; and second, and relatedly, the integration of learning in and about nature throughout the week.

The importance of routines was highlighted at the second interview, when we discussed why certain things that Doris wanted to do might be falling through the cracks. Like most Kindergarten classes, Doris has a number of centres in her class: the art centre, the house centre, the building centre, the writing centre, and children spend a large part of class time at centres. Until recently, these centres were generally self-selected and children could, and usually did, move from one centre to another during Centre time. After attending the Pedagogy of Relationships, one of Doris’ commitments had been to have the children stay at one centre for the whole Centre time (usually about a forty minute block), both to encourage them to work with more care and less rush, and to give her more time to work with individuals and groups of children.

Rebecca – So how is it not fully happening? Do you think it’s the time thing, or do you think it’s that it hasn’t become fully routinized?

Doris – I think probably the routinized bit – it hasn’t become totally routine. And also there’s a lot of things in kindergarten. One of the things for example you may intend to do it and the next day she’s not there, or the next day, like this music thing. There’s constantly all of these things, and I think they’re always going to be there, and because they are, to such a large degree, the routine has to be really solidly set, just as set as it was with the whole routine
that [another teacher] had where you did [the letter] A on Monday, B on Tuesday. I think that’s how strong we have to be in the routine, of following through, otherwise it’s just too hard.

(Interview 2, March 2010)

The importance of routines, especially when a practice is new, for both children and teacher, is reflected here. In particular, it might be easier to develop new habits of observing and listening to children when the space and time to do so is easily available. Setting up these routines, and consistently following them is therefore important if Doris is to use documentation regularly.

Reggio Emilia classrooms often use the analogy of the environment as the third teacher (Malaguzzi, 1998) – whether the natural environment or the classroom environment, open-ended learning materials, and the time to use them, are considered essential to supporting the child’s learning.

I found it so much with the painting when they were using the small brushes, everybody became better. And even if they were just exploring colour on colour, like Ally was, it was beautiful. And she was having such a great time just exploring colours, different colours, putting them together. And I thought wow, that’s what artists do. So, it just felt a lot nicer. They had the time to do that (pause). So I think that’s what I have to do to do this, otherwise I can’t see it working. So when you talk about what are the constraints – classroom organization, I guess. (Interview 2, March 2010)

Here again is the importance of going slowly and giving children time to look and look again, as first discussed in Chapter 4.
In a setting where there is a shortage of time to do it all, it is important that the organization supports the teacher to achieve his or her priorities. For example, watering and caring for our seedlings and indoor plants throughout the week impacts on Doris’ capacity to model stewardship. The issue of Centre routines, and many of the new routines, or scripts, in general, continued to be a challenge for Doris until the end of the year. But her vision was long term, and she spent considerable time after school going through materials in her classroom, removing unneeded items and seeking out more effective, open-ended materials, that would support a smooth running Centre routine in the coming year.

Relatedly, integrating learning in nature throughout the week, beyond our Nature Spy Wednesdays, was an ongoing challenge, which Doris referred to in all three interviews:

So I think that they’re kind of getting it, that on Wednesdays is nature day now, and we focus on nature, and that’s how the day is spent.…

And I’d like to extend it to more than just the Wednesdays, and I think the discussion is extending more. … (Interview 1, November 2009)

One thing that was good this year was that it kind of highlighted it, that it was different and it was special and it was about nature, and I think they really got the message that it was nature day, and I think that that was a good thing about having it, otherwise it would have been so much an integral part of their learning, that they might not have … which is good but “now we’re going to focus on nature, oh it’s nature spy now I’m going to have a closer look, or I’m going to look after it, I’m going to nurture it.” So I think there was that specialness about it, that really cements it in their memory for a long time. (Interview 3, June 2010)
The question that these comments evokes for me is whether it is more effective to separate learning in nature from the rest of the curriculum, or to integrate it into the day, and to what extent one approach should be adopted?

4. Constructivist/emergent curriculum and equity

One of the frequently expressed concerns in the literature about constructivist informed approaches, which is the umbrella under which emergent curriculum falls, is that children who come to school equipped with strong ideas and skills have the most to put into an emergent curriculum, and therefore get a disproportionate amount of attention from teachers, and thus get more out of emergent curriculum; while children who come to school disadvantaged in terms of ability, confidence, previous experience, have less to give and therefore get less out of it. While I question whether the concern about equity is any greater for emergent curriculum than for any other kind of curriculum, I brought a lens of equity to this project.

The philosophy of documentation that is so important to Reggio Emilia-inspired emergent curriculum seeks to overcome this by helping teachers listen closely to all children, no matter how quiet, noisy, or unconventional their voices may be (Falk & Darling-Hammond, 2010; Scheinfeld, Haigh & Scheinfeld, 2008).

Yet for a teacher who is just beginning to develop the skills and habits of emergent curriculum, I am less confident. Without having done any quantitative analysis, my sense is that there were about three or four children who got a lot of attention: they were frequently mentioned in our interviews, and were often the children who came up to share books or experiences with the class. At the same time, there were perhaps two or three children who seemed to be underrepresented.
What factors might have made a difference? Senior kindergartners (five year olds) were often, although not always, likely to get more positive attention aimed at eliciting their ideas than junior kindergartners (four year olds). But in a JK/SK class, the developmental difference between Juniors and Seniors is wide: Seniors, a year older and with a year of school behind them, tended to have stronger oral language skills, more knowledge of the world around them, and greater capacity to focus, than the Juniors.

Because our school is located nearby a family shelter, over the course of the year, several children arrived and left the class, sometimes staying for as little as two weeks up to several months. Not having had the background experience in the class made it difficult for them to contribute as much as other children did.

And finally, those children who spent a lot of time in nature at home often had more to contribute than other children, and often had stronger oral language skills and confidence. As a teacher beginning to use a new approach, it is a difficult balance to use and build on the ideas of these children to stimulate the learning of others, while still looking and listening for what other children do have to offer, even if hearing them takes more time and more effort. Doris was beginning to recognize this challenge, as the following excerpt from the second interview suggests:

Doris – I think that Ally is – she does grasp the most interesting questions when we go out and observe nature, and she also notices the most – some very interesting things. … And yeah, she was interested in the texture and she was smelling it, and just really totally absorbed in it. And I think that that’s a natural way for her to learn, and I think that some of the other children aren’t there.

Rebecca – Not yet.
Doris – No, so I think that what she does naturally we have to encourage the others through our questioning to do. And the looking closely, and I think when at the beginning what we did was “Oh!” and just keeping our eye on whatever the object was and saying “oh, so what are you noticing about it?”, drawing their attention back to the specific object that they’re looking at. (Interview 2, March 2010)

Doris’ comment suggests the potential of using our awareness of where children are, developed through the use of documentation, and the open-endedness of outdoor learning, to support learning tailored to children’s needs and interests: to, in the words of Carlina Rinaldi, “create social contexts through which the uniqueness and unrepeatability of the individual can appear” (Turner & Gray Wilson, 2010, p.9).

The issue of equity is relevant within a given class of children and across classes, that may receive different opportunities. In this case, through the curiosities of placement, Doris’ afternoon class was noticeably heavier in children from a higher socio-economic background than her morning class, which was a very challenging group. Even while recognizing the inequity, Doris felt uncomfortable taking her morning class outside:

Yeah. My morning class is interesting, because I’m going to take them outside.

And just, and try and embark on something to see. I would have to make sure that things are in place in terms of enough people to be there. They might wander…. But yeah, out of curiosity, I’m willing to go and see what the response is, because if they can’t manage it, well then, it’s really easy to fix, if we’re just in the school yard, we go back in. …
A lot of them [in the afternoon class] are starting with an appreciation of nature, and sort of preserving nature. Well they always are doing stuff, and the morning kids aren’t – so they almost need it more, in a way because, I’ve felt it will take longer to get results, and that’s what’s discouraging and frustrates us … because 7 o’clock in the morning they come here [to daycare], now when I go home at 6 o’clock they’re there at 6 o’clock at night, that is why they need it, I know, but it’s hard. (Interview 1, November, 2009)

And by the third interview, Doris was more comfortable with the idea of taking this more challenging class outside -- next year, perhaps?

It would be interesting to see with another class, how they – because I never actually did get it going in the morning class, and it would be interesting to see how it works with another class, because this was a pretty special class in the sense that they had a lot of skills in place because they do a lot of reading, they have a lot of experiences with their parents, they’re definitely a high functioning group. So I’m wondering how it would work, and you know, it would work in a different way. (Interview 3, June 2010)

Much of this chapter, while addressing the unique challenges that Doris and I faced in implementing critical place-based pedagogy, has also dealt with the broader challenges of change. As DuFour, Eaker and DuFour (2005) describe in their discussion of professional learning communities, it takes considerable effort and time to take on a new way of teaching and relating. Often the term challenge carries a negative connotation. Yet that is not the image I hope to portray with these challenges – instead, they might be more akin to signposts on a journey, or
those beginning days of a garden when, as we found, the right kind of soil, enough water and
enough light, matters so much to creating a foundation for a garden that will bloom all summer.

Our collaboration provided this input, this foundation, from which Doris and I could
challenge our relationships with children and with nature, and begin to develop new skills and
habits that support a critical pedagogy of place. The following chapter looks specifically at this
process of collaboration.
CHAPTER 6: FINDINGS AND ANALYSIS:
A BRIDGE TO CRITICAL PLACE-BASED EDUCATION: COLLABORATION

Introduction: Collaboration

In this chapter, I look at how the collaborative nature of this project supported Doris’ and my professional learning. A central aspect of our collaboration was simply that it offered the opportunity and the accountability to engage in outdoor learning, which then gave way to more opportunities and directions for professional learning. This notion of collaboration as a source of accountability is the first and most fundamental theme explored here, and it leads to several other themes. This chapter, therefore, is organized into five parts: (1) collaboration as a source of accountability; (2) the unique qualities of our teacher-researcher relationship as defining and driving our collaboration; (3) collaboration as a vehicle for building new teaching skills; (4) collaboration as a vehicle for supporting a culture of change in the whole school; and, relatedly, (5) collaboration as process, as the laying down of roots that will continue to grow and to support growth for years to come.

1. Accountability

Much of the power of our collaboration was grounded in the expectation that Doris, myself, and her class would spend one afternoon a week focusing on nature, and to explore where this took us. Doris often spoke about how, when she was accountable to go outside every week, she became empowered to get beyond the personal and logistical and time challenges, and simply go outside:

And in the winter time, too in terms of hands on, it’s very helpful just to have an extra set of hands for the kids to get dressed, to get outside, to get all their snow things. And to keep on going, because I’m thinking if I was on my own
too, I’d say forget it, let’s not go out today. But it’s important for them to experience all of the seasons and all of the weathers, and, and, I think that sometimes whether it’s a psychological barrier or whether it’s just I don’t want to put their snowsuits on today, those are real factors, too… (Interview 2, March)

As Doris described, having someone coming in from outside provided the positive accountability to step into a journey of critical place-based pedagogy, and to stay the course. The early stages of implementing change, in particular, are strengthened by the accountability and also the encouragement, sharing, and modelling of a collaborative relationship: “I think to start something new, I think this sort of teacher collaboration and working together is critical, and I think it’s like a mentoring almost. You were the encourager, … and the mentor” (Interview 3, June 2010).

This accountability was not only about the practice of spending time in nature, but also about reflection (often tied to documentation) as a guide to classroom practice, both inside and outside. “Teachers become accountable to themselves when they are diligent students of their own teaching.” (Krechevsky, Rivard & Burton, 2010, p. 66). As we talked and worked together at our interviews and planning sessions, the mingling of our often different perspectives helped us to refine our thinking. Just as Doris and I asked children questions to help them to look closely at nature, the questions I asked Doris often gave way to more ideas and questions. This pattern is reflected in many of the excerpts from interviews presented so far: exploring the relationship between critical pedagogy, classroom practice, and the formal curriculum; or considering next steps for Jason’s experience of the moss on the tree; or elucidating a more useful understanding of documentation; or considering how to establish centre routines that promote deeper learning.
As Malaguzzi (1993) reminded us, teachers of emergent curriculum, must constantly question our thinking and challenge our certainties.

My role was similar to that of a mentor or critical friend (Slavit & Nelson, 2009), or, in considering a Reggio-inspired approach, perhaps somewhere between a co-teacher and a pedagogista (Malaguzzi, 1993). Bringing alternative perspectives to each other was important. Throughout the project, I provided Doris with several articles that exposed her to ideas about the purpose of education and the power and practice of critical place-based pedagogy, (e.g., Stevenson, 2007) and specific articles about environmental education and emergent curriculum (e.g., Lewin-Benham, 2006). Reflecting on the process of our collaboration, at the second interview, Doris said:

It’s been a very rich experience for me and I’m very glad we’re doing it. It’s really increased my capacity in terms of all the readings that you’ve given me, and working with you. I think I’ve said before that I think team teaching is the way to go, bringing different strengths to the table, … And I think it’s important to work with somebody else when you’re changing direction, because I think you have to have somebody to discuss it with, and it’s better to have somebody who has a bit more knowledge. And you’re bringing all your research to the table, and I think that that’s making a difference. (Interview 2, March 2010)

Two sets of eyes helped Doris and me to consistently challenge our thinking and move it forward into action. Edwards (1993), writing of the power of co-teaching in Reggio Emilia schools – “the teacher is not expected to figure out all by herself what she should be doing. Always she works in collaboration with other adults” (p. 159) – and Hart (2008) writing of teachers engaged in
collaboration around environmental education, emphasized relationship and social interaction as the background through which teachers – just like children – learn. This sense of sharing the intellectual as well as the physical labour came through in Doris’ comment referring to the time we spent outside: “if maybe there was a moment when I couldn’t totally see the direction we’re going in, there would be you, you might see the direction. So that sort of sharing was good for the first year too” (Interview 3, June).

2. A collaborative relationship.

Doris spoke of our relationship as co-collaborators, and of the qualities of our personalities that worked well together:

Doris – I enjoyed working with that kind of energy. It’s a good energy for me. It would be just – for a person that would be more buzzy all the time – if you came in with an agenda and a clipboard and ten things that we needed to do, you know, “last time, we didn’t do this…” But you never did that.

Rebecca – But would it make you do things that you wouldn’t otherwise do?

Doris – No, it wouldn’t make me do that. … I don’t think it’s any more effective, to come in with an agenda. I probably would have resented it – “oh what’s Rebecca going to make me do today, she’s going to have a list of stuff I have to do.” And I never felt that way. And so if you feel as a mentor like you didn’t come in with a list, I would say if you did it again, do it the same way, I don’t know for me it was perfect, because … I didn’t feel like it was something else I had to do on Wednesday, I felt like “Wednesday’s coming, I wonder what the kids are going to come up with, I wonder what’s going to happen”. (Interview 3, June 2010)
Doris’ comments also suggest that the power of collaboration, and what determines its effectiveness, is more than just accountability, but the relationship of those collaborating. However, Doris’ comment is in stark contrast with my research journal notes:

Doris and I aren’t always completely on the same wavelength. She doesn’t always follow up with things throughout the week, e.g. rereading documentation, caring for plants. Is this lack of time, or is it, although she professes to me the value of outdoor learning, and all the curriculum connections that come from it, that she doesn’t really prioritize it, or is it that the nature stuff hasn’t really become part of her automatic teacher scripts? (Research Journal, June 2010)

Juxtaposing our two perspectives compelled me to wonder if, just as an emergent curriculum approach calls on teachers to observe children in order to guide curriculum, I needed to observe Doris more closely, and more intentionally, to allow her own teacher development curriculum to emerge, and to support this, rather than imposing my own “curriculum” on her. I expressed this further on in my research journal in June:

Or perhaps, like the children, she was moving on her own agenda, at her own pace. She often did things like giving the children thinking homework the day before a Nature day, or introducing new ideas like thigmomorphogenesis, or reading Edward the Explorer. (Research Journal, June 28)

Carol Anne Wien’s (2008) definition of collaboration as “a more collective rather than individualized vision of life together, and a strong sense of participating in a social democracy” (p. 7) suggests that collaboration is more than something we do, but a way of being and thinking.

Doris commented on the sense of collegiality and comfort that working together gave her:
Because we’re experiencing it together, and you have somebody to have a good day with, have a bad day with, and not worry about it. Did you worry? It wasn’t, it was just one of those days, “that was a hard day, wow, they were really unfocussed today,” and yet there were always two or three really valuable things that came out of that day that made me realize that yes it was worth it. So being able to reflect together, I think is important. Because you get more discouraged on your own, if you see four kids running around at the other side of the yard, and it’s just like “Ugh, man” but with 2 people it’s just more relaxing, it’s a mental/emotional state to share the burden. It’s just so much better, I think it’s a powerful teaching practice. (Interview 3, June 2010)


Doris’ and my collaboration this year provided an opportunity to build and refine a new repertoire of skills and become comfortable with different teaching practices that support teaching and learning in the outdoor classroom as well as emergent curriculum. For example, Doris commented on how she will continue to use Nature Books for children to record their findings outside, but with some refinements:

… So I think that’s something I’ll do earlier next year. It will be a different format of a book, a bit bigger book maybe with a place to draw and a place to record, or to even label at the beginning of the year, so if you wanted to write down that you saw a tree that day you could just put a “t”, for the young ones, it’s a good way to lead them into writing, from their natural interest. (Interview 3, June)
We consistently made small changes in how we organized the teaching and learning outside. At the end of our outdoor time each day, we had usually been having children meet on the ledge of the play structure outside to share their experiences with each other. But, finding that it was difficult to see and hear each other, and therefore to have a meaningful sharing time, we tried having everyone sit in a circle in our shaded nature corner, and found that this was much more comfortable and effective. Again, having two teachers to offer ideas and solutions helps in the process of refining new practices.

This skill set grounded in experience helps to provide a foundation of knowledge, confidence, and flexibility for following through with a critical place-based pedagogy next year and in the future.

4. Supporting a school culture shift.

One of the important ideas that Doris expressed in the June interview was that our collaboration provided not only the accountability to make changes in her practice towards a critical place-based pedagogy, but also the opportunity to be able to justify her changing practice to the wider school community. Specifically, my position as a Masters’ student provided Doris with information, but also with the language and the research to be able to account for her practice to parents and the school community:

And you know what too, that was good about you coming in, because you’re doing your thesis on it and it’s a study, and it’s kind of research, it provides me with the – how shall I say it? - I can say to the parents “What we found through this research is…” You know, all the things I would want to say anyway, but now I have something to back me up. (Interview 3, June 2010)
Doris’ practice exists within, influences and is influenced by the school culture (DuFour, Eaker & DuFour, 2005; Giroux, 1988) that itself exists within the wider professional and social culture of the TDSB and of Ontario Ministry of Education. Therefore, to be able to make sustainable change in classroom practice, it is important that her philosophy and approach be understood and accepted by the community in which she works.

As a former Early Years Literacy Project (EYLP) Literacy Coordinator who worked with other teachers in the school to develop their skills teaching reading and writing, Doris was naturally conscious of the kinds of teaching practices used in other classes and other grades, and our work together spilled into other teachers’ practices and interests.

Through our documentation – often kept on the wall outside the classroom, as well as informal conversations between Doris, myself, and other teachers – the other Kindergarten teacher at our school asked me to come into her class to help her arrange some outdoor learning activities, including using Nature Books: and a Kindergarten teacher at a nearby school also adopted the practice of using Nature Books outside, with great success and enthusiasm.

These changes not only supported the development of these other teachers, but also established emerging community of teachers exploring critical place-based pedagogy. This supports the sustainability of the changes in Doris’ own practice, as she now has access to a group of teachers who increasingly understand and support much of the purpose and practice of critical place-based pedagogy; further, it means that what started as a project in one classroom in fact had a much broader impact.


perspective to short term day to day survival, and exhausts their energy and capacity for engaging in change. Although the unwatered seeds testify to the relentlessness of the classroom press, our collaboration helped Doris to see new possibilities. The joy of spending time in nature in collegial relationship with each other and with the children, and the accountability to do so every week (or almost every week) for a full school year, formed a foundation from which next year’s growth would emerge:

I never would have done it to this extent, there’s no way I would have done it every Wednesday, and been vigilant about that, because there’s so many things that interfere, it’s just so much easier not to. And that’s the good thing about having a person come in from the outside, because it forces you to do that, to keep to that schedule, and then you realize, “you know what, you can do that”.

(Interview 3, June 2010)

In particular, Doris’ experience this year inspired her to make plans for next year:

When I was upstairs in the storage room, I found a long easel about this long, so two or three people can paint on each side. So I was thinking of taking it outside sometimes. I would like them to do more of that sort of a thing, so they’re actually looking outside, and painting while they’re out there, instead of having to come back in and do it. ... So I’ve ordered four Reggio books online, and I’ll read through those this summer, and build on the knowledge, and it’s so nice to have done it with somebody, instead of just reading and dreaming of doing it. I’m so glad we did it. (Interview 3, June 2010)
The deepening, over the course of the project, of Doris’ understandings, not only of what critical might mean, but also of what place-based might mean, in kindergarten, is a reflection of the power of our collaboration. Her understanding of nature also evolved over time. Doris’ earlier more functional view of nature as a setting for learning skills, contrasts with her later attitude towards nature as a unique source of wonder:

So my understanding of environmental education is developing a sensitivity to the outdoors and the world around the children. And for them it would be hopefully developing a growing sensitivity to the living world around them, and Mother Earth. And just being more aware, and more sensitive to nature, and more caring. (Interview 2, March 2010)

And finally, in Interview 3, Doris used the umbrella of relationship to frame her ideas about nature and environmental education:

Now, I really don’t know if it was the same at the beginning, I really don’t remember. My understanding of environmental education would be that it would be a relationship, with nature. And I think that that is the main focus I got from the Reggio Emilia thrust is that it’s children developing relationships, and this being a relationship with nature. (Interview 3, June 2010)

What I recognize is not that one attitude toward nature is more correct than another, but that Doris’ ideas were continuously evolving and being refined through the course of our collaboration. The implications of the findings discussed in chapters 4 to 6 are the subject of the next chapter, in which I look beyond Doris’ classroom to the wider landscape of critical place-based pedagogy and teaching and learning for environmentally sustainable living.
CHAPTER 7: CONCLUSIONS AND RECOMMENDATIONS:

CRITICAL PLACE-BASED LEARNING IS POSSIBLE IN KINDERGARTEN

In this chapter I draw some conclusions and make some recommendations for children, teachers, and schools. As a case study of a single classroom, this project is too specific to make broad universal conclusions. Further, as qualitative research, it pretends no neutrality – I have drawn my own interpretations from the data collected. Even so, the power at the core of this research project is that it shows what is possible for education for environmental sustainability for young children, specifically in the urban Ontario context. It suggests some possible avenues for further exploration.

This project suggests that critical place-based learning is possible in kindergarten, and further, that it naturally supports children to develop self regulation and critical thinking skills. There may be many ways of enacting critical place-based learning with young children – from gardening to addressing specific local problems – in this project, we focused on developing an intimate relationship with a little corner of nature. Children had opportunities to visit and revisit the same trees, flowers, and even bits of ground at different times of the year and to observe changes. Their questions and ideas matured over several months – like Jason’s wonderings about the rocky moss, but also ideas that were not yet articulated – emerging from months of observing and caring for ants, flowers and bees. Children’s learning occurred in the context of developing strong relationships with each other, with the teacher, and with the natural world. They experienced the joy of experiencing, of being immersed in the natural world. They had opportunities to practice empathy, and yet this was an empathy that was honest and imperfect, and perhaps still immature – an empathy that doesn’t yet have room for all creatures and all perspectives – an empathy for four- and five-year olds that awaits further development in the
next years of schooling. Stewardship developed as we cared for the seedlings, and for the plants inside and outside; like empathy, there are certainly many more opportunities for practicing and developing stewardship in our corner of the school grounds, and beyond.

This project suggested that there is ample space within Ontario’s Kindergarten Curriculum for learning outside in nature. In fact, rich experiences and opportunities in reading, writing, oral language, and mathematics learning were at the core of the project – from the conversations we had in groups big and small, both outside and inside; to the drawings and writing the children did in their Nature books; to reading and understanding new information about ladybugs, bees and other creatures; to the prodigious amount of writing all children, including some reluctant writers, did when we returned to the classroom each Wednesday.

The notions of stewardship, and also of children taking some degree of ownership over their own learning – for example, in deciding whether and what to write about each day – connects to the ideas of agency and self-regulation, and the action-orientation that is so important for environmental education. This project suggested that the effectiveness of children’s learning of content, process, and action-oriented skills depends on how the teacher nurtures opportunities for learning, and nurtures strong relationships – among and between children, teacher, and the natural world. Based on this research, I suggest that for young children, a critical place-based approach should:

- offer frequent regular opportunities for open-ended play outside in a familiar area;
- integrate learning in literacy, numeracy and the arts with learning in and about nature;
- offer opportunities for looking closely at nature, for asking questions, and expressing theories;
• support self-regulation and agency through opportunities to make increasingly responsible decisions.

Both the successes and the challenges or missed opportunities that we experienced in this project highlight the essential role of the teacher in facilitating a critical place-based learning relationship. To be most effective, such an approach needs a teacher who:

• looks and listens closely to children, to provide the opportunities to support their learning not only of content, but also of process;

• believes in the capacity of young children to think creatively and critically, and provides the scaffolding to do so.

My vision is of children and teachers actively engaged in negotiating their roles as citizens in the indoor and outdoor classroom community, in the same way that we hope they will participate actively as adult citizens.

This seems like a simple vision, but it is a big shift from most conventional classrooms, where most decisions are made for children, and most thinking is done for them. For teachers to support this kind of learning, documentation as a tool for looking closely at children is essential. Collaboration and reflection provide the accountability and the professional relationship in which teachers’ learning is supported. There is no one way to teach, no one way to address complex issues in teaching, learning, or the natural world. As teachers and children explore what it means to be critical, what it means to build a relationship with nature, what it means to look closely, it is important that this learning be part of an ongoing, open-ended dialogue. Therefore, to support critical place-based learning for children, teachers need to be supported:

• through rich, meaningful, genuinely collaborative relationships with colleagues;
• through Curriculum documents and policies that implicitly and explicitly give space to the kind of learning that critical place-based approaches support;
• through time – time for planning, meeting and collaborating;
• again, through time – in the recognition that meaningful learning for children and teachers is a journey that can only be effective if there is time for reflection and practice;
• through space – curriculum space, outdoor space, and the space to learn, share and experiment.

Further, critical place-based learning for young children needs to be understood as just one step in a continuum of learning, that needs to continue to be provided in a developmentally appropriate way, for the changing abilities and needs of children throughout their school years. How great the possibilities if the close relationship with nature, and emerging critical thinking skills and sense of stewardship developed in Kindergarten continues to be intentionally fostered and built upon in each year of schooling!

At the same time, critical place-based learning – the idea of a connection with nature, and the image of schooling as being about more than just economic skills -- is a new concept for many teachers. Teachers will continue to learn, alongside their students if such an approach is to become reality. As I write, Doris and I are both preparing for a new school year, in which we are both committed to bringing our classes outside, and using principles of Reggio Emilia-inspired emergent curriculum in our teaching. The metaphor of the journey is powerful – it is a journey that will never finish, as long as we are teaching, and learning, but a path that we’ll continue to explore.
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APPENDIX A: LETTERS OF INFORMED CONSENT

Letter of Informed Consent for Teacher - All letters on University of Toronto letterhead

February 2010

Dear Participant:

This letter is to confirm your consent in this thesis study towards my Masters’ degree. This research study has been approved by the TDSB and the University of Toronto. You will be exploring critical place-based learning in kindergarten through a collaborative approach. This project will involve weekly collaboration meetings between you and myself, of up to thirty minutes each. In addition, I will observe and work with you in the class, or outdoors, one afternoon per week, to be determined at your convenience. Further, I will arrange to meet with you for three taped interviews to discuss your experiences of critical place-based pedagogy and a collaborative approach, at the beginning, midpoint and end of the research.

During class visits, collaboration meetings and interviews, I will be taking field notes. In addition, the interviews will be audio-taped. I will audio-tape some interactions with and between children during my class visits. Relevant data may be published in the final research study. The data gathered might also be used in subsequent research or articles I may write.

I will take a number of steps to ensure anonymity and confidentiality of the research. All names and identifying details will be changed in interview transcripts and written accounts. Only myself and the members of my thesis committee will have access to the research materials.

You will have the opportunity to read the draft of the written study and provide comments related to the accuracy of the data. If there are any disagreements between our interpretations, that can not be resolved, they will be mentioned in the final written study.
You may withdraw from the study at any time without reason and without penalty.

My faculty advisor is Dr. Erminia Pedretti. If you have any questions or concerns, feel free to contact her at 416-478-0080.

If you agree to participate in this research study, please complete the attached form and return it to me.

Sincerely,

Rebecca Weigand
Participating Teacher’s Consent Form

I, ___________________________, agree to participate in this thesis research entitled *A Garden of Learning: Exploring Critical Place-Based Pedagogy in Kindergarten*, as described in the attached letter.

The nature and general purpose of this study has been explained to me by Rebecca Weigand. I understand that I may withdraw from the study at any time without reason and without penalty.

I hereby give Rebecca Weigand permission to use all or part of the data collected for the published thesis or for any other research the author may publish. I also give permission to audio-tape interviews and classroom activity as part of this research.

_____________________________  ______________________________
Participant’s Signature       Date
Letter of Informed Consent for Principal - All letters on University of Toronto letterhead

February 2010

Dear Principal,

I am completing a research study for my Master’s degree. The study addresses critical place-based learning in kindergarten through teacher-researcher collaboration. This study has received approval from the TDSB and the University of Toronto. I would like to have one of your teachers participate. As part of this study, the teacher and myself will be exploring critical place-based learning. I will visit her class weekly to collaborate in a critical place-based approach, and gather data. As weather permits, we will go outside to the school grounds during this time. In addition, the teacher and myself will meet briefly each week to plan and reflect on our work. We will meet three times over the course of the research period for a formal interview. The teacher may withdraw from the study at any time without reason and without negative repercussions.

I will be taking field notes during interviews, collaboration meetings and class visits. I will also audio-tape interviews and some aspects of class visits. Relevant data from written reflections, classroom visits and taped conversations may be published in the final research study. I will also take photographs and collect work samples from children as part of the ongoing process of documentation. Photographs or work samples will only be published on condition of a signed letter of consent by a parent or legal guardian based on your approval.

My faculty advisor is Dr. Erminia Pedretti. If you have any concerns, feel free to contact her at 416-978-0080. Please sign below if you agree to allow the teacher to participate in this study.

Sincerely,

Rebecca Weigand
Principal’s Consent Form

I, __________________________, principal of _____________________, of the Toronto District School Board, agree to allow one of my teachers and classes to participate in this thesis research entitled *A Garden of Learning: Exploring Critical Place-Based Pedagogy in Kindergarten*, as described in the attached letter.

The nature and general purpose of this study has been explained to me by Rebecca Weigand. I understand that the teacher may withdraw from the study at any time without reason and without penalty.

I understand that neither the teacher nor the students are placed under any undue risk by participating in this study.

__________________________________  __________________________
Participant’s Signature                Date
Letter of Informed Consent for Classroom Assistant –

All letters on University of Toronto letterhead

February 2010

Dear Participant:

I am conducting a research study of young children’s learning in nature through an emergent curriculum approach. I will be observing and participating in the class one afternoon a week.

During class visits, I will be taking field notes. In addition, I will audio-tape some interactions with and between children, yourself, and the teacher, during my class visits. Relevant data may be published in the final research study. The data gathered might also be used in subsequent research or articles I may write.

I will take a number of steps to ensure anonymity and confidentiality of the research. All names and identifying details will be changed in interview transcripts and written accounts. Only myself and the members of my thesis committee will have access to the research materials.

You will have the opportunity to read the draft of the written study and provide comments related to the accuracy of the data. If there are any disagreements between our interpretations, that can not be resolved, they will be mentioned in the final written study.

You may withdraw from the study at any time without reason and without penalty.

My faculty advisor is Dr. Erminia Pedretti. If you have any questions or concerns, feel free to contact her at 416-478-0080.

If you agree to participate in this research study, please complete the attached form and return it to me.
Sincerely,

Rebecca Weigand

*Participating Classroom Assistant’s Consent Form*

I, ____________________________, agree to participate in this thesis research entitled *A Garden of Learning: Exploring Critical Place-Based Pedagogy in Kindergarten*, as described in the attached letter.

The nature and general purpose of this study has been explained to me by Rebecca Weigand. I understand that I may withdraw from the study at any time without reason and without penalty.

I hereby give Rebecca Weigand permission to use all or part of the data collected for the published thesis or for any other research the author may publish. I also give permission to audio-tape my activity in the classroom as part of this research.

_____________________________  __________________________
Participant’s Signature        Date
February 2010

Dear Parents,

As many of you know, I have been spending time every Wednesday afternoon in Mrs. XXX’s class as part of a project on young children learning in nature. This is work towards my thesis for my Masters degree in education at the Ontario Institute for Studies in Education (OISE), University of Toronto. This project has now been approved by the Toronto District School Board, and I am about to begin formal data collection.

With the children, my project involves outdoor learning in the school grounds, and indoor learning that includes reading, talking, drawing and writing, and craft-making about nature, our experiences and our ideas. As the weather improves, we will begin to focus on gardening. We will not go outdoors when the weather is extremely cold or rainy.

As part of my data collection, I will record some of the children’s conversations. Some quotes from these conversations may be used when I write my final thesis report. The names and identities of the children will be kept confidential.

I may take pictures of the children as part of my research. If I wish to use any of these pictures, or any copies of children’s work in my final thesis report, I will get your specific written permission first.
If you are interested in the issue of learning in nature, a useful book is *Last Child in the Woods* by Richard Louv, available at the public library. If you would like to talk further with me about children’s learning in nature, or if you have ideas or experiences to share about gardening, please get in touch.

If you agree that your child’s ideas may be tape-recorded and possibly used in my final thesis report, please sign and return the attached form. You may change your mind at any time.

If you have any questions or concerns, please contact myself or Mrs. XXX. You may also contact my thesis advisor at OISE, Dr. Erminia Pedretti, at 416-478-0080.

Sincerely,

Ms Rebecca Weigand
Parents’ Informed Consent Form

I understand that my child ________________________ is participating in the nature project as part of the classroom learning in Room 103. The title of the research is A Garden of Learning: Exploring Critical Place-Based Pedagogy in Kindergarten.

I agree that my child, ________________________,’s ideas may be tape-recorded for use in Ms Weigand’s thesis project, and understand that his/her name will be kept confidential. I understand that I may change my mind at any time.

Yes ______  No ______

----------------------------------------------------------  -------------------------------
Signature                      Date
At the back of the school, there was a mud chocolate hole. Samuel thought it was chocolate. I thought it was mud.
I found an aphid on my arm today!
I was surprised!
I had never seen anything like it.

I found an aphid on my arm today!
I was surprised!
I had never seen anything like it.
I found a dinosaur bone and Ally said it was a tree branch. But it wasn’t.
APPENDIX C: Excerpt from Doris’ Documentation

Wed. May 19/2010  The seeds that [redacted] planted had grown soooo BIG we WONDERED what to do.

<table>
<thead>
<tr>
<th>Photo</th>
<th>Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>![Sunflower plants]</td>
<td>We noticed that the leaves on the sunflower plants were starting to turn yellow and dry at the bottom and we wondered if they needed more space to spread out and grow. We decided to try to transplant them into one of the BIGGER barrels in the garden area.</td>
</tr>
<tr>
<td>![Sunflower plants being transplanted]</td>
<td>When Ms. Weigand took the plants out of the pot we were amazed to see how all of the roots were twisted and grown together. How would we separate them to plant them? If we pulled them apart, would we hurt the plants? What should we do? We decided to pull Ohhh sooo Gently.</td>
</tr>
<tr>
<td>![Children digging soil]</td>
<td>We had to make the soil ready for the sunflower plants. [redacted] and [redacted] started to prepare the holes to transplant the sunflowers. It was so much fun digging the dirt and making it soft and ready for the plants.</td>
</tr>
<tr>
<td>![Child digging soil]</td>
<td>[redacted] loved to dig the soil. She liked it so much that she dug and dug and dug. When she put the sunflower in she said “Oh, No! This hole is too Deep, the sunflower will be all covered up. I will fix it.” So [redacted] fixed the hole just right, not too deep, not too shallow.</td>
</tr>
</tbody>
</table>

| [redacted] | [redacted] |

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*Note: The [redacted] fields have been redacted for privacy.*