

Cultivating and Reflecting on Intergenerational Environmental Education on the Farm

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Introduction

In 2002 we designed a small environmental education project driven by the central question of *how* could we promote a responsible attitude and care for the planet among young people. Through this project we wished to illustrate how eco-philosophies could be translated into educational programs that foster environmental consciousness and care and to further the critical and systematic examination of environmental education initiatives. Our goals were to develop in young people *care for the environment* and *deep appreciation and understanding of scientific principles of ecology* that underpin and support the balance of nature. With this as our starting point we began the Intergenerational Landed Learning on the Farm for the Environment Project. In the Project elementary school children and community elders work as partners to raise food crops on an urban organic farm located on the margins of the University of British Columbia. Our design was informed by McNamee's (1997) argument that ecological caring develops gradually over time through caring interpersonal relationships in families, by the premise that farms provide opportunities for tangible hands-on participation with the land, essential for developing environmental consciousness (Morris, 2002), and by the idea that eating is an environmental act (Berry, 1990; Pollan, 2006).

Neither our choice of site for the project, nor our theme of food, was random. Our site selection was in part political, prompted by a visit we made in 2001 to the UBC Farm, a 24-hectare parcel of land surrounded by second-growth rainforest, which stood as the last functioning urban farm in our Regional District. While historically a place for extensive research by the Departments of Botany, Forestry, Agriculture and Plant Science, the farm was now largely fallow and neglected. A small group of Agriculture students and faculty had recently discovered that this fertile space was designated in the university's Community Development Plan for future housing, and invited us to join them in their mission to provide a different future for the land. The proximity of the space, the diversity of its ecosystems, the pastoral setting in quiet isolation from the city, and our wish to bring attention to an important piece of ground under threat all contributed to our decision to situate our project at the Farm. Food was chosen as our theme because it provided a concrete focus that could be explored and developed to promote understanding of our intimate connections with the earth. Further a food growing environmental venture would allow us to draw upon our expertise and interests in science, environment, foods education, home economics, and global concerns.

The connections among food systems, human health, and our ecosystem are the central thesis of a number of recent articles and books (see Pollan, 2006; Smith & MacKinnon, 2007; Weber & Matthews, in press) and the basis of long-term school and community garden projects such as the Edible Schoolyard (Stone & Barlow, 2006) and the Learning Gardens initiative (Williams, 2008a,b). But when we began our project, we drew our inspiration solely from our personal family experiences and our backgrounds as science

and home economics educators. As researchers, we were interested not only in providing an environmentally educative growing experience for young people, but also in investigating the impacts of these experiences. We were interested in studying the role an intergenerational approach could play in inspiring stewardship in children and the ways that the field experience in food growing could *impact the health and wellbeing* of the children and adults. Additionally we sought to develop pedagogical practices that would seamlessly link the field experience with in class curriculum in support of environmental learning.

The pilot project we began in 2002 thrived, grew and evolved. Six years later more than 400 school children and their teachers, and 150 adult volunteers have participated in a September-to-June, hands-on program of organic food growing that is integrated with explicit conversations and lessons about ecosystems, care for the land, food security, and human health. Researching practice within the Intergenerational Landed Learning Project is ongoing and focuses on understanding the experiences and outcomes for the children, their teachers and the adult volunteers. Each year we document activities; investigate the experiences and response of the participants; and refine our approach and practices based on what we learn. Operating as the project's designers, fundraisers, providers, and researchers over these years has prompted us to adopt an action research lens (Carson & Sumara, 1997; Zuber-Skerritt, 1996) that fosters self-inquiry, reflection, new insights and change.

In this paper we draw on six years of empirical data and self-examination to present our learning about environmental education *in practice*. We begin by describing the project as it appears in the present day. Then we discuss and reflect on the evolution of our endeavour by considering three distinct iterations of our project to illustrate the ways in which our thinking about the practice of environmental education has evolved along with our efforts to advance environmental understanding and stewardship through hands-on, intergenerational farming. Each iteration emerged in response to the events, issues, and tensions that occurred along the way.

The growing project today

Each year three grade 4 to 7 classes and their teachers from three separate Vancouver schools participate in Intergenerational Landed Learning. The children come to UBC Farm on 12 occasions throughout the school year. On a typical day, the children travel by school bus to the farm, a ride of 30 to 45 minutes. They arrive around 9:30 in the morning, are dropped at the Farm gate and walk, or more often run, to the Farm Centre greenhouse where they are greeted by their “Farm Friends”, and assemble for a “mini” lesson and overview of the day’s activities. While at the farm the children work in groups of three or four with one or two Farm Friends who are adult volunteers from the community with gardening and farming expertise, or university students. Whenever possible multi-generational groups are created that consist of one university student, one community volunteer and three or four school children. The program manager facilitates the day’s activities, and with input from the farm friends provides information on a specific topic such as water, pollination, composting, soil composition, that prepares the

children for what they need to know as they work in their garden beds. Most farm days include time for the children to share or present what they have been learning in their schoolwork that relates to the farm activities.

At the start of the project year each farm friend group is assigned to one or two raised beds in the garden. Their activities on each day at the farm relate to planning for that bed, planting, caring for the plants and harvesting; each step in the full cycle of food production. The groups spend nearly two hours learning and gardening together. Each visit one group works with a program assistant in the Farm Centre kitchen to prepare a food using what the children have grown that can be eaten by all. In this way nutrition and food preparation become part of routine discussion and learning at the Farm.

At the end of the morning, all the children and farm friends assemble as a large group to share with each other what they have observed and learned, and to sample the food prepared that day. At the end of the morning most of the adult farm friends leave, while the children stay for lunch, enjoy some free time and participate in afternoon activities such as forest walks, honey-bee care, soil testing, and worm and traditional composting led by their teacher, a farm friend, the program manager, or a guest speaker. The children and their teacher leave the farm at 2:00 pm and journey back to their school by bus.

While UBC Farm is urban and adjacent to a freeway, the surrounding forest buffers and mutes the sounds of the city to create an urban oasis. Coyotes wander by. Eagles and hawks soar overhead and rodents and insects create food-growing challenges. The farm

operates a market garden and raises bees and chickens. This environment is a vibrant, sensory-rich space for student learning and activities that encourages playfulness, observation, experimentation and decision-making. At the same time the meditative, slowed-down pace of gardening provides opportunities and time for intergenerational talk and relationship-building, and inspires hearing, smelling, tasting, seeing and feeling all parts of the environment.

In the beginning there was intergenerational farming and science

Our practices. In the pilot project during the first two years, we worked with grade 7 girls from a private school and retired farmers in the Vancouver area. We brought these groups together in a small, designated area at the UBC Farm and let our senior experts guide the decisions about what and how to grow in that space. Our motivation to work with a private school related to our assumption that privileged children were particularly distant and disconnected from the land and yet in the future they are likely to occupy influential positions in society. We met with a group of teachers in the school who were interested in land-based learning, but worked primarily with one science teacher, whose own education had included agricultural experiences. She believed as we did, that her young students had few opportunities to play outside, touch soil, and explore food growing. She was keen to create opportunities for learning science beyond the classroom. We anticipated the activities would begin in the fall with intergenerational social exchanges and the children learning about the lives and practices of farming from their adult mentors. The planning phase would take place in winter, and planting and hands-on learning would follow in the spring, ending in June. We imagined the project

as interdisciplinary -- abundant in social history, language, communication, and science curriculum opportunities and these ideas were part of our discussions with the teachers. Our vision of interdisciplinary learning however was never fully realized because the language arts, technology, and social studies teachers' participation was limited. The grade seven students had a different teacher for each school subject and there were no opportunities for teachers other than the science teacher, to visit and experience the farm along with the children. In addition the children were grouped differently for each class, making it impossible for the teachers to create joint assignments that could integrate learning. In these first two years we piloted the small group working teams of three to four young students with one or two elders. This model proved to be a highlight of the project for everyone and provided a rich space for cross-generational exchange and reciprocal learning (Mayer-Smith, Bartosh & Peterat, 2007; Peterat & Mayer-Smith, 2006).

Reflecting on experience. From interviews and observations of the children and seniors we learned that the social, sensory, and intergenerational contexts and experiences were far more powerful, memorable and significant than the environmental and science learning (see Peterat, Mayer-Smith, Lee, Sinkinson & Tsepa, 2004). For example, we heard comments like:

[You learn] gardening skills...and you have to learn to cooperate in groups and respect your farm friend. Maybe that will help me later when I have to respect other people in my life (student, 2004).

I will remember going to the farm and seeing our farm friend and them teaching us about gardening and learning about gardening (student, 2003).

It's kind of neat to have someone who spent part of their life farming, to be a guide. Normally if you were growing up in the city, you'd have to grow stuff by yourself and read books. But (here) you have like a primary source (student, 2003).

I'll probably end up remembering this because I actually did something for it. The other ones (classroom lessons) I was just handed a sheet of paper and told, memorize this for a day. And, I won't use it. The farming stuff, I am learning. So when I have a garden when I'm older I'll remember and be able to take care of it. I can apply it to other things (student, 2003).

Meanwhile the teacher struggled to find a space for environmental topics in the existing science curriculum and experienced some tension and questioning from students when she set aside some traditional laboratory activities to take her students to the farm on 12 occasions.

I don't think I'll plan a career in farming [therefore] its not that useful. Its kind of good enrichment but it's not a big necessity in your education. It's good to have, but not that necessary (student, 2003).

While the teacher was emphasizing science connections and creating multiple opportunities for students to link their field-based and classroom activities, the grade 7 girls regarded the social, aesthetic, and intergenerational experiences as the primary rewards of participation. (This viewpoint was retained and re-emerged when we spoke with them 5 years later). They recognized they were doing science as well as learning to plant and care for soil and food crops but all of that was of secondary importance.

More challenging for us was the level of environmental understandings that emerged from the experiences for the children. Some of the grade 7 girls did come to regard themselves as part of the ecosystem.

It [the farm] teaches you about the environment and how it interacts with things around it... like how the insect interacts with the plant and how the plant interacts with us and how we really depend on each other (student, 2003).

However, understanding of environment as a concept, and environmentalism as a value remained largely unchanged by their involvement in an organic food-growing initiative. So while the children in our project did make connections to each other, to their growing spaces, to the soil, and to their senior “farm friends”, the concept of environment remained for many unintelligible, intangible, and ambiguous -- too large to grasp.

We're out in the environment but we're not doing [anything] environmental (student, 2003).

Expanding and exploring socio-economics, gender and school culture

Our practices. In the third and fourth years we retained what we found to be the most positive and powerful elements of our initiative -- the intergenerational teaming and hands-on food growing activities, and moved our project into two public schools located in distinctly different neighborhoods. By doing so we were able to involve both boys and girls, and children from a greater range of socio-economic backgrounds, including many from new immigrant families. The number of participants increased significantly from 18 students to over 90, and from 7 senior volunteers to 25. This required seeking additional funding and expanding the area we were cultivating at UBC Farm. In addition to extending the size, reach and inclusivity of the project, our goal was to explore whether we could promote deeper environmental and sustainability understandings among children by working with generalist teachers in public schools who could explore and advance in their classrooms the interdisciplinarity inherent in environmental education. We also sought to work with teachers of younger students in grades 4, 5 and 6, anticipating that these teachers would feel less bound by, and pressured to conform to defined curriculum outcomes. Providing 12 days of farming activities for as many as 60 young students and their teachers per visit created practical and tactical challenges that included recruiting many more senior and adult volunteers and teaching social skills to young school children and management strategies to volunteers. For farm visits we hired a program leader who ran mini-lessons that focused on the connections among land, food, human health, and environment. We also hired a curriculum and interdisciplinary specialist to help us create a set of resources and field-based activities that could be linked to the classroom and provided these in advance of farm visits to the teachers so

they could prepare their classes. And, we created opportunities for the teachers to meet, hoping that bringing teachers together to talk about ways to integrate environmental education across the curriculum would foster deeper understanding of both the possibilities and concrete strategies for bringing an environmental education focus to the classroom.

Learning from our practices. Our experiences in years three and four indicate that motivations and commitment to participating in an “environmental” farming project can vary considerably depending on how the teacher participants construct and view the experience in relation to their own teaching agenda. One of the teachers who came to the project in the third year noted that his initial agenda changed as he experienced the program with his students. He began the project hoping he could use farm-time to conduct deductive experiments that would meet the science curriculum requirements for students. Over time he began to view the learning opportunities more broadly and became aware of inherent inductive possibilities.

At the beginning... I was thinking more along the lines of scientific methodology. I am seeing it unfold in a completely different way. Listening to them speak, and thinking about how much science was being done, I am impressed. I think it would be great to include some kinds of experiments associated with what we are doing. But you know not all science is done that way.... Now I feel differently. Science has to begin with questioning. They are asking a lot of questions. They are asking why. They are seeing the results of the various conditions of growing plants and they are able to draw conclusions from that (teacher, 2004).

While this teacher's philosophy and approach evolved over the course of the project other teachers held more firmly to curriculum agendas they believed were supported by the schools where they taught. This seemed to be related in part to a given school's socio-economic status.

Schools enrolling children from higher income families can and do offer a range of special programs with fees paid by parents, and most students in these schools participate in extra-curricular, after-school activities. By comparison, learning about sustainable food growing at a local farm may be deemed interesting but not necessarily 'special', and it is the teacher who must 'sell' students and parents on the value of such activities. For schools that enroll children primarily from lower income families, visits to the university-based farm become the highlight of the school year. However, teachers from these schools viewed the development of life and communication skills, social, intergenerational and cultural understanding and the fostering of positive self-image that took place at the farm as important as environmental and science learning.

[The project is about] ...developing relationships with people. Because we are involved heavily with the farm mentors and I think the number one goal for me in elementary school, ... is [for] kids [to] learn how to work with other people. Learn how to be good citizens. Learn how to work and to interact in a positive way with other people, and how to share ideas. You know, the farm is really promoting those things in very crucial ways. (teacher, 2006)

Bringing teachers from these different “types” of schools together to develop curricular activities for their classroom was challenging (and ultimately not successful) as the teachers themselves realized they had different goals for their students. The way that the teachers responded to the resources designed to support the integration of field activities with classroom lessons conveyed additional messages about the how these teachers viewed and constructed their experiences in our project. Those from the high SES school saw the provision of additional materials as adding to their teaching responsibilities despite our assurance that anything we provided was to be viewed as supplemental. In the end they asked that we not give them so much information -- saying they would find their own resources and connections with the project if and when time permitted. Teachers from the low SES schools viewed these same materials as opportunities. They felt comfortable drawing elements from these resources to create new pedagogical activities.

Interestingly, we saw fewer differences in the responses of the children across schools. Most children, regardless of social class, gender, or culture, experienced the farm as a special place where they could learn and play at the same time; they gained understanding about farms, food, and planting, and developed strong bonds of friendship with their adult farm friend. The universal hugs and tears and small tokens of appreciation exchanged between children and adults on final farm days for all our schools provided clear evidence that culture and SES mattered little to the participants in our project.

The relationships that they built...I was a little surprised... I hadn't expected them [the children] to have such a profound effect on the farm friends themselves. There were some girls who I did not think would form a tight bond, and who did...to me that was tremendously successful. That part of it is priceless... (teacher, 2005)

Universally, however, as in the first two years of the project, the children had difficulty communicating what they understood about environment and environmental issues.

While this was disappointing, connections to and care for place, were clear outcomes for all but a few children.

The environment means more to me because I learned more about what's happening and what people... what mankind is doing to wreck the environment. Its like we are changing the environment, our environment to suit us. We are not making ourselves [to] suit the environment. We are changing everything; we might actually make more animals extinct (student, 2006).

The small number of children who were neutral or less than positive espoused strong preferences for spending time in human-made spaces, playing with technologies or conveyed phobias about touching soil, insects, and plants.

By the end of the fourth year we had developed a solid understanding about program attributes that worked, including enrollment and engagement practices, and procedures,

and we were ready to re-consider our focus. Our model worked well with younger children, small and larger classes, and girls and boys. The teachers had their students researching plants, conducting modest scientific growing experiments, and creating short presentations to share their understandings. But integrating classroom science lessons with intergenerational growing activities, planting experiments, and onsite lessons about sustainable agriculture, cycles of nature, and soil still didn't appear to be promoting deep understandings about environment. Further we had noticed that working with, and communicating and coordinating mini-lessons for 60 children had changed *the feel* of the experience. Less time was available for intergenerational exchange, planning, planting, and harvesting. The large numbers of people gamboling, chatting, working, and laughing brought its own energies but also transformed the space -- altering the quiet landscape of the farm into more of a lively, carnival-like atmosphere. We concluded that we needed to reduce the scale of things and focus on quality including fostering a learning community among the teachers and community building among our volunteers. We decided to create more space and opportunities in our programs for small groups to experience and connect with nature -- to contemplate, observe, and reflect on growing food and its significance for the earth. Our new focus would be on food systems and eating as ways of experiencing and locating ourselves in the environment.

Advancing community, resource sharing, and eating as an environmental act

Our practices. By the fifth and sixth years of the project we had many teachers asking how they could get involved in the project and we moved to an application process for our teachers. Based on our experiences we sought individuals who were interested and

articulated how they might bring an explicit environmental focus to their classroom practice, and committed to the values of community building, sharing ideas and resources, and integrating a food growing initiative with classroom lessons. We opted to work with three classes of 30 students and their teachers from three schools, with each school group traveling to the farm on 12 occasions as before but we began our visits in September. We asked that teachers commit to meeting together on five or six occasions to discuss and share their ideas and classroom practices for integrating the farming activities with school curriculum. Our goal was to support the teachers and to pilot and refine the set of resources we had created in the previous two years so these could be made available for other teachers to adapt for use in their classrooms. We also reduced the onsite teaching and gave more responsibility to the small farm friend led groups to communicate and ‘teach’ children about land care and food growing practices. Other changes introduced included the addition of more conversations and lessons about plant health, local food issues, and healthy eating. These topics emerged naturally as we began to involve one team of children and their adult farm friends in preparing a ‘healthy’ snack each visit in an onsite kitchen we added to the Farm Centre building.

Learning from our experiences. Involving the children in learning to prepare snacks from the food they grew was a logical extension, since we had harvesting activities taking place throughout the fall and we had already experienced abundant early summer harvests. Food preparation soon became the favorite activity that was mentioned as a highlight by every child in the program.

Recruiting committed teachers also became a positive step. Five half day meetings became productive and enthusiastic sharing fests. The returning teachers supported and discussed their practices, and new teachers brought fresh ideas that were welcomed and piloted. During the teacher meetings they were eager to share books on the environment and food that they had located online or in school libraries, to discuss integrating activities and projects and to share students' journals, reflective writings, online blogs and art work. As in previous years, we found that brief, not always explicit conversations about the environment did not lead to changes in the children's views. At the same time, the focus on food and food related issues and participation in hands-on cooking activities proved successful. Furthermore, the time devoted to group conversations about recycling, care for the earth and local and global problems paid off, with the majority of children talking at length about these issues. The children were able to articulate the importance of recycling and composting in caring for the earth. They recognized global warming as an issue. But being able to articulate the links between healthy eating and sustaining a healthy earth or understanding environmental/ecological systems is challenging because these concepts are very broad and abstract for the age of children we are working with. We found that explicit conversations may assist but risk becoming didactic and contrary to the experiential learning we want to emphasize in the Farm setting.

Epilogue

Our successive years of project development and research into the experiences of the children, volunteer adults, and teachers illustrate the challenges of adopting a disciplinary

lens in environmental education. Although support for and interest in environmental education do exist, environmental education will remain marginalized in the existing education system unless schools can blur the disciplinary boundaries fortified by the existing curricula. Furthermore, teachers and environmental education providers need to work together on a regular basis to create curricular opportunities that build on experiential learning and integrate field and school experiences. Much of this work may entail teachers assisting and learning from each other. An action research approach to this work can be a very supportive strategy.

The longitudinal data from interviews with the children who participated in this project five years ago also illustrate the significance of the social, cultural, and intergenerational contexts in the project design. Through social and intergenerational experiences that involve community farmers and gardeners, and young students the project breaks down societal barriers to age segregation and provides opportunities for children and adults to meet and talk about real life issues and life experiences. Such intergenerational work fosters an appreciation of diversity, a principle essential to environmental education.

As our project has grown in reputation and number of participants, we have received increased media attention and have become part of the ‘fight’ to preserve the university farm. Thus, we have discovered that “The Farm” and its land have assumed a much more pivotal role than we had anticipated, not only providing an authentic space for playing with new ways of teaching and learning about land-food-human-health-earth connections but also bringing our project and the participants’ experiences into a political arena that

has both extended our reach and shifted our *practice* of environmental education into the realm of environmental *action*. Since supporting, sustaining and building a future for our project require that the farm site secure land tenure, the children, teachers, volunteers and project personnel have all become players in a real environmental drama. This illustrates the significance and potential of conducting environmental education in informal places such as urban farms. Such spaces provide rich opportunities for melding environmental education with the school curriculum and making it real and meaningful for all who are involved.

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