Fall 2009

A Photovoice Participatory Evaluation of a School Gardening Program through the Eyes of Fifth Graders

Catherine Sands
Krista Harper, *University of Massachusetts - Amherst*
Lee Ellen Reed
Maggie Shar

A PHOTOVOICE PARTICIPATORY EVALUATION OF A SCHOOL GARDENING PROGRAM THROUGH THE EYES OF FIFTH GRADERS

By Catherine Sands, Lee Ellen Reed, Krista Harper, and Maggie Shar

Introduction

The garden brings people together because you're all working together to plant all these things.

In the springtime, fifth grade students at the Williamsburg Elementary School in rural Western Massachusetts ask to snack on sorrel and chives from the school garden, between planting potatoes and building a shade structure for their outdoor classroom. They are members of the first cohort of the curriculum-integrated program initiated by Fertile Ground, a grassroots initiative in western Massachusetts. The children's delight in the fresh greens they have grown marks a national phenomenon: the farm-to-school movement. With limited resources, parents, teachers, students, administrators, and community activists are developing inroads to better school food and food education, by constructing school teaching gardens, visiting neighboring farms, engaging in classroom cooking projects and community harvest meals, and providing lasting farm and cafeteria procurement connections. This wave of national activism has arisen in response to the alarming diet-based childhood health crisis, and a desire for hands on experiences that connect young people to the land, food, history, their community—and themselves.

During Spring 2008, Fertile Ground underwent a participatory evaluation project, in which fifth grade students assessed the value of inquiry-based, hands-on learning in the school garden through the Photovoice method.

Photo by Williamsburg Students

Figure 1. Composting at School

Photovoice research places cameras in the hands of community members so that they themselves document and discuss their concerns and perspectives (Wang et al. 1996). The research was designed to gain insight about the students' knowledge of food, nutrition, and community food systems, having participated in six years of hands-on programming in the school garden. The research also aimed to illuminate the students' impressions of leadership, fellowship, care for the land and community that have arisen out of Fertile Ground farm-to-school programs.

The Photovoice study was designed by Fertile Ground Director Catherine Sands, undergraduate anthropology intern Lee Ellen Reed, and Maggie Shar, Fertile Ground program coordinator and instructor. Professor Krista Harper supported the project with her expertise in research methods and with equipment from her newly established Photovoice Research Lab at the University of Massachusetts, Amherst. This article outlines the context of school garden learning programs and its relevance today, delineates the methodology of our research, its assets and limitations, and offers an example of youth-driven, participatory Photovoice research and evaluation for farm-to-school programs.

Photo by Williamsburg Students

Figure 2. Planting Potatoes

Why School Gardens? Why Local Foods Curriculum?

The farm-to-school movement teaches children where their food comes from and develops new school markets for small farmers. It has emerged as a response to a growing nutritional health crisis in young people, resulting in elevated levels of childhood obesity and diet related illness. Antonia Demas, founder of the Food Studies Institute writes, "Children are growing up in a fast-food culture, detached from where their food comes from, how it is produced, and how it affects their

Photo by Williamsburg Students

Figure 3. Sampling Greens from the School Garden

Photo by Lee Ellen Reed

Figure 4. Students Building a Ramada

bodies and minds. The costs in physical and emotional health have been staggering" (Demas 2006). In ten years, farm-to-school (F2S) has emerged throughout the nation as a program that can positively affect children's dietary habits, improve the quality of food in school meals, and support local agriculture (Joshi and Beery 2007). One of the reasons for the growth and excitement about the F2S movement is that it brings together disparate advocacy groups whose work has previously been separate: sustainable agriculture, anti-hunger, and public health and nutrition (Allen and Guthman 2006). F2S provides new, reliable markets for local farmers, reintroduces traditional food knowledge and customs, and addresses the need to improve the federal free and reduced price lunch program, and the crisis in health due to processed foods and lack of access to fresh and local produce. As Allen and Guthman note, rooted in public money, F2S has the potential to affect children equitably across race and class lines. Many states have introduced legislation to support aspects of F2S. School gardens, a significant factor in the farm-to-school methodology, offer direct, hands-on learning experiences.

F2S programs have grown from six local efforts in 1997 to nearly two thousand in thirty nine states today (MacDonald 2008). More than fourteen states now have F2S legislation. In Massachusetts, a provision of the Local Agricultural Preference Law creates incentives to support procurement of local foods in schools. Additionally, a coalition of food, health, education, hunger, and sustainable agriculture organizations and agencies has introduced with Representatives Kulik and Forry legislation to create a state food policy council which will address food security policy issues with the aim of getting more nutritious, locally grown food to more people. These policies provide the essential foundation to support childhood health and wellness (Nestle 2007).

However, they will not change children's eating habits alone. A critical piece of the farm-to-school movement centers on the education and exposure necessary to encourage children to eat fresh vegetables. A recent Cornell University study suggests that children learn more about nutrition and wellness when taking part in the planning stages of school and community gardens, than solely by weeding and watering vegetables. The author states, "enlisting the creativity and innovative thinking of young people, is necessary to make lasting change" (Eames-Sheavly 2008). Fertile Ground is forging these changes, through innovative programming at the Williamsburg Elementary Schools and beyond.

Photo by Williamsburg Students

Figure 5. A Student Discusses Plans with Garden Educator Hope Guardenier

Research Setting: The Fertile Ground Garden at Williamsburg Elementary School

Williamsburg is a predominantly middle-class rural town located in the Pioneer Valley of Massachusetts. The gardening program examined in this study was begun in 2001 when teachers, families, and children from rural Western Massachusetts and teenage farm leaders from nearby urban Holyoke's Nuestras Raíces, an economic and community development organization, broke ground at the Williamsburg public elementary school. With teacher Sherrie Marti, Fertile Ground director Catherine Sands launched a program to teach children how to grow and delight in eating fresh vegetables. The program has grown from a kindergarten class project to a full-school model, in which sustainability, organic gardening, healthy eating, cultural appreciation and social justice are learned experientially from grades PreK-6.

Each year, each class spends one day a week for 24 weeks outside studying with educator Hope Guardenier. The children grow produce from seeds started indoors in the winter under grow lights, plant them out, tend, harvest, and cook a community harvest feast in the fall. The curriculum-integrated program addresses state framework standards in math, language arts, social studies, and science. Fertile Ground programs in the Williamsburg School were designed to broaden students' experiences of tasting fresh vegetables by combining hands-on learning with constant sampling of fresh vegetables that the children themselves grew. The students study composting, decomposition, cultural food traditions, the water cycle, weather, rocks and minerals, plant growth. They meet neighboring farmers on the farm and in the town Grange Hall. Twenty school families adopt the garden each summer. Fertile Ground is funded by local foundations, donors, and Williamsburg families.

Adapting the Photovoice Method to Classroom Research

During Spring 2008, Williamsburg fifth-grade students became Photovoice researchers, documenting experiential education in the school garden. Reed and Sands worked closely with teachers to develop a participatory research

project for students to document their perspectives of the garden and local foods curriculum from early March to late May 2008. Reed helped the students with taking pictures, journaling, and facilitated short focus group discussions and peer interviews. Based on their perceptions of the value of learning about growing and eating healthy whole foods, the students selected photos for discussion and display. Community members and other stakeholders in food policy, food education, the school system, and local business were invited to the June exhibition at the Meekins Public Library, a community hub in Williamsburg. The exhibition then forged a path across the region to stakeholders and policymakers working to improve food access.

Sixteen of the school's twenty-four fifth graders chose to participate, signing consent forms with their parents. Sands, Guardenier, and Reed, together with teachers, Amelia Szabo and Karen Bierwert, devised a method of structuring spring gardening classes into revolving shifts of photographers and activity participants, with Reed supervising the photographers. The school computer instructor, John Heffernan, conducted an introductory photography class. Reed, Sands and Fertile Ground program coordinator Maggie Shar, collaboratively designed a method of eliciting images and reflections from students. Each participating student took four photos every other week, and on the off weeks received her photos in print, with writing prompts or questions listed below.

For the first chilly March weeks, the students took pictures inside of the various activities in which they partook as part of the Fertile Ground curriculum. For example, the first class consisted of selecting seeds from catalogs, then mixing soils, learning about local food, and finally picking their "legacy" project that they as a class would leave behind them when they graduated into middle school. Later, seeds were started under grow-lights. Out in the garden, the students raked, hoed, planted, and watered. The seeds shot up fast.

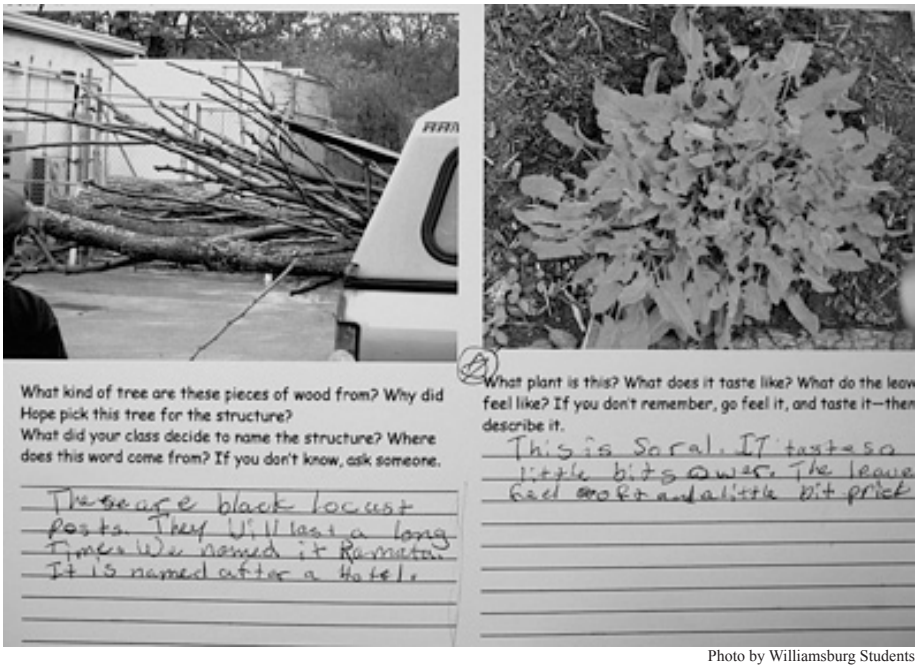

Photo by Williamsburg Students

Figure 6. Student Photovoice Journal

The students in both classes were excited to use digital cameras. Many of them bubbled when Reed announced their names as this week's photographers. Conversely, she observed many long faces when announcing students as focus group participants. Writing, for some, appeared to be too tied to traditional education. Garden time is a much-anticipated weekly event that allows the students to move around and engage outside in experiential education. To maintain the program's emphasis on hands-on learning, Reed elected to alternate between verbal and written responses to the photos.

The students selected their photos for the exhibition and reviewed the final groupings compiled by staff. Reed culled written and voice anecdotes to accompany the photos. From the wealth of impressive and beautiful pictures, the staff attempted to achieve an element of equitability by selecting photos chosen by students themselves. Forty photos (8 X 11 inch) were mounted on black foam core panels with anecdotal commentary by the students. No names were used in the presentation of photos or anecdote to protect privacy of the students. The students selected an order of presentation, participated in hanging the panels in the library, and attended the opening reception with their families and other community members. The photos were on display for one month at the Meekins Library, on view to the local community much to the pride of the students and their school.

Evaluating the Students' Learning Experiences Through Photovoice

Our primary research question was "Do the garden programs increase understanding of foodways and health?"

Photo by Catherine Sands

Figure 7. Setting Up Photo Exhibition

Photo by Williamsburg Students

Figure 8. "Soil Soup"

We asked the fifth graders "If you were going to teach young children about growing food, what would you show them?" Based on the structure of weekly class topics in soils, local foods, seed cultivation, decomposition, the students illuminated their garden and food learning in the following ways:

1. The Relationship Between Soil and the Food We Eat

As a direct result of six years of garden experiences, these students demonstrated their ability to thoughtfully discuss soil and compost as complex systems. "This is the picture of the ingredients of soil soup. Mmmmm. Lots of stuff goes into making a batch of soil. You add ingredients to the soil to make it rich. Younger kids need to know some of the basic ingredients. We make soil out of greensand, rock phosphate, peat moss, potting soil and cotton seed, and perlite. It was really cool how you need all that that stuff."

About the interrelation of life cycles, a student comments, "You put the plants in it (compost). And you need the plants to make the animals live—which is where the meat comes from. And the dairy product is from the animals which give us the meat. Which eat the plants." Hands-on exploration of composting and soils provides the knowledge base for understanding nature and life as cyclical.

2. Developing Inquiry and Observation Skills

The students' photographs, journaling, and interview commentary all reflect honed observation skills. Multimedia exploration opens the gateway for descriptive engagement with and sensory observation of nourishing plants. For instance, one student writes, "I'm a taster so I write it down. First I'll take a piece of sorrel and I'll eat it and then I'll write what it tastes like, and I'll smell it and I'll write what it smells like, and I'll write what it looks like."

Using senses of smell and taste, another writes, "It was sour, tangy and tasty. And it smells like lettuce." "Sorrel tastes like lemon. It's sour. It's good sour not bad sour." Another remarks on texture, "Sorrel fees rugged, smooth, oily, and bumpy." One student combines taste, smell, and touch "Hope taught me if you crumple it up, squish it around and then smell it, it smells like lemon." And finally, the gardening and reflection process open possibility to examine cultural history and science, "This plant is lemon balm. It has a very bright color. It is sour and sweet and lemony. It smells lemony too. It is used to heal snake bites, fevers, it's antibacterial and repels bugs."

3. Understanding Local Foodways and Local Economies

Photography provided a tangible means of reporting. Inspired by Deborah Habib and Kaitlin Doherty's (2007) school garden study, we asked the students to design meals from local produce. One student described the experience:

> We made menus that use local food. We used a list of local farms and what you can get there. Like Crabapple Farm which sells vegetables, eggs, fruits, meats, and flowers. It is in Chesterfield. I learned that local farmers get a lot more money at the end than farmers in California.

Students practice retelling what they learn, which in turn, cements the learning process;

> Maggie had us act out how the strawberries get from California to here and everything that goes into getting the strawberries here. It was grown on a farm, then driven to a packaging place, then put on a truck, then driven to a store, then you buy it, and then you eat it.

Another student observed, "I learned the average distance food travels to get to you is 1500 miles." And another noted the economic rationale for supporting local agriculture, "You might want to eat local foods because it costs less and helps the town."

Students are learning to discern taste of garden produce from produce that has traveled a great distance to the market. Responding to the question, would you rather eat a vegetable grown in the garden or from the supermarket: "Garden, because it tastes better." Another student adds, "I would rather get one from the garden because I know it's fresh, and because I grew it myself." Having experienced a school garden for six years, the students know the sharp difference in flavor and nutritional benefit of locally grown produce.

> We know that we helped make something locally grown. If we come here in the summer and we pick some stuff, we don't have to worry about it being transferred from 7 million trucks…that's going to be a good thing. I like growing food here because it's really good. Really, really good.

4. Leadership and Critical Thinking

In the process of taking pictures and reflecting on them, the students documented their learning about cultural respect and leadership. For their garden "legacy project," Ms. Bierwert's class discussed building a shade structure to trellis climbing plants. They wrote neighboring Abenaki historian Marge Bruchac to inquire whether a tipi would be appropriate. After Dr. Bruchac

responded, the students had a discussion with their teacher about different cultures, stereotypes, looking at something from different perspectives, respecting others. Reflecting on the classroom discussion, a student's comments show budding critical thinking, "We chose not to because it would be stereotyping Native Americans. [Tipis] are usually temporary structures and they're used as places of spiritual stuff so we wouldn't do that."

Instead, the students built a shade structure named "Ramada," which they describe as "a place for shade and a fun place to hang out." A student describes an image of students building the structure: "People are digging two feet deep in the dirt so the pole will stay up. They are setting down a black locust log to build the Ramada. The work will get harder from here on because we will keep digging holes and we're going to have to put up the framing." A student shared her excitement about leaving a lasting imprint on the schoolyard:

> We're making a structure for us to leave behind. It's going to be really fun to come when we're really old to sit in. We're finally getting able to hang posts, and finally getting able to hang sticks and use yarn on it. We're going to hang fabric on it so that when it rains and stuff people can still come to the garden. And people walking by this place can come in sit in it. It's not just for the people at the school.

The Benefits and Limitations of Our Photovoice Research

Photographs offer young people the opportunity to express their ideas visually, to articulate impressions with more than words. Often the photos become the doorway to verbal expression. One student wrote "You put the seeds in the soil and give it water and love and sunshine and you've got a plant." Furthermore, the Photovoice project provided the instructors and teachers an accurate feedback tool, a way of assessing the students' comprehension of material.

With the photographs, students felt their work cultivating food was valued by a broader community. Through the project, they documented their own local knowledge, the "…very mundane, expert understanding and practical reasoning about local conditions derived from lived experience" (Yanow 2000). The photographs, anecdotes and entire Photovoice process illuminate an eye for detail, a concern about contributing to the community, a delight in learning with the senses, a critical appreciation of local farming, and a pride in accomplishment learned through digging, growing, building, and shared experiences in the garden.

When we first presented the project as a "research project," we discovered that the students held negative connotations of the word "research." It seemed too much like school. Gardening for these young people is clearly a coveted time for a different kind of learning, not at a desk, but in action, with their hands, minds, taste buds and whole bodies. We found that framing research as "photojournalism" or "storytelling" appealed more to young people.

The project was limited by time for planning and implementation. We had less than a month to plan, and less than three months to implement the project. In addition, traditional fifty-minute weekly class blocks restricted time with cameras in hand; participants had approximately 10 minutes to take photographs, and, on alternative weeks, 10 minutes to respond to their photographs. While students were able to select their favorite photos for exhibition, due to the short six-week time frame of the project and early part of the growing season, we were not able to schedule adequate time to involve students in the important decision-making process of selecting captions to accompany their photos. Typically, Photovoice can involve participants in focus group selection of photos and issue framing. Instead, due to time constraints, after transcribing all of the responses—from voice recorder, digital videotapes, and writing—Sands and Reed distilled information most relevant to the project to accompany student selected photos. Finally, time constraints dictated that only a fraction of the students' multi-season garden experience was recorded--the early spring. Hence, the project did not include summer care, harvesting and cooking.

Figure 9. Seeds

Taking the Learning to a Broader Public—Policy Implications

Over 3,000 people have seen *Snap Peas* since it was first exhibited. When setting up the first exhibition at the Williamsburg Meekins public library, we never could have imagined the size or range of audiences it would reach. It traveled to the tenth anniversary conference of the Center for Public Policy and Administration (CPPA) at the University of Massachusetts, Amherst, and then to the Boston State House, hosted by Representative Stephen Kulik. There, students met with Secretary of Education, Paul Reville, to discuss the value of farm-to-school programs.

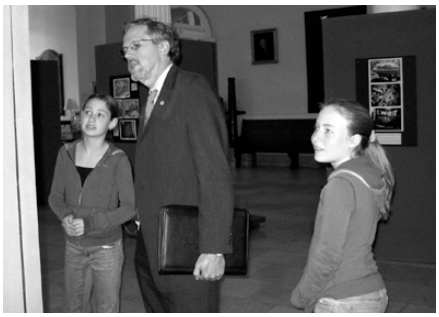

Figure 10. Students at Boston State House Exhibition with Massachusetts Secretary of Education Paul Reville

In 2009, Food For Thought Books displayed panels in storefront windows on the main street of downtown Amherst. The exhibition was then taken to the National Farm-to-school Conference in Portland OR, the Northeast Regional Farm-to-school Conference in Burlington VT, and the MA Farm-to-school Convention in Sturbridge MA. Two students taught a workshop titled *Students Tell it Like it Is: Snap Peas: a discussion of Photovoice and School Gardens*, in which they performed the exhibition: projecting the slides and reading the words. They instructed workshop attendees on the steps they took to develop the Photovoice project, and the power of student-led evaluation. Margaret Krome, Policy Program Director at the Michael Fields Agricultural Institute recently wrote, "Williamsburg MA students showed photos they had taken of activities in their Fertile Ground program. While gardening and learning about healthy nutrition, they also practiced making presentations… How better to teach students democracy than helping them influence policymakers themselves?" (Krome 2009).

The process of presenting the Photovoice exhibition to the larger town community, policy makers, and to regional farm-to-school experts afforded the students a chance to see that their food knowledge was respected and appreciated by adults in their town, region, and beyond. The young people know how food gets to the table, from the farm to the fork, and why healthy food choices matter. Taking photos, describing the learning, presenting them to a wider public, the students uncovered their own knowledge "I really enjoy the school garden because you learn a lot about healthy foods and what is good to eat…I'm glad we can show everyone how cool it is" (students quoted in Downing 2008). They see their Fertile Ground school program in the context of a broader farm-to-school movement where they have something to teach others. And it offers discerning qualitative findings to the farm-to-school movement told through the eyes and words of young people learning about good nutrition, healthy foods, and critical thinking.

References

Allen, Patricia and Julie Guthman
2006 From "Old School" to "Farm-to-School": Neoliberalization from the ground up. Agriculture and Human Values 23:401-415.

Demas, Antonia
2006 Growing FEED, The Network Newsletter of VT FEED Schools. Spring 2006, p. 6.

Downing, Senator Ben
2008 Senator Ben Downing's Press Pass: Week of November 1-7, 2008. Electronic document retrieved 11/7/09. <http://www.senatordowning.com>

Eames-Sheavly, Marcia, et al.
2007 Greener Voices: An Exploration of Adult Perceptions of Participation of Children and Youth in Gardening Planning, Design, and Implementation. HorrTechnology 17:148-272.

Habib, Deborah and Kaitlin Doherty
2007 Beyond the Garden: Impacts of a School Garden Program on 3rd and 4th Graders. Orange, MA. Seeds of Solidarity Education Center. Electronic document retrieved 5/27/09 <http://www.seedsofsolidarity.org>

Joshi, Anupama, and Moira Beery
2007 A Growing Movement: A Decade of Farm-to-school in California. Los Angeles: Center for Food & Justice.

Krome, Margaret
2009 Children Plant Carrots and Democracy. Capital Times, May 27, 2009. Electronic document retrieved 5/27/09 <http://www.madison.com/tct/opinion/column/krome/452740>

Macdonald, G. Jeffrey
2008 Food Program Brings Together Schools, Farmers. USA Today, March 23, 2008.

Nestle, Marion
2007 Food Politics: How the Food Industry Influences Nutrition and Health. Berkeley: California.

Wang, C.C., Y.L. Yuan, M.L. Feng
1996 Photovoice as Tool for Participatory Evaluation: The Community's View of Process and Impact. Journal of Contemporary Health 4:47-9.

Yanow, Dvora
2000 Conducting Interpretive Policy Analysis. Thousand Oaks: Sage.

Catherine Sands *is founding Director of Fertile Ground, teaches Community Food Systems at the University of Massachusetts Amherst, and is a program evaluator with the Holyoke Food and Fitness Policy Council.*

Krista Harper*, PhD, is an assistant professor in Department of Anthropology and the Center for Public Policy and Administration (CPPA) at the University of Massachusetts, Amherst. In 2007, she established the Photovoice Research Lab with funding from the UMass College of Social and Behavioral Sciences. "Snap Peas" was the first student-initiated project to emerge from this lab.*

Lee Ellen Reed *is beginning a Fulbright scholarship in Germany where she plans to conduct ethnographic research on the organic farming. She recently graduated from New College of Florida, where she majored in anthropology and German language and culture. She conducted this research project as an honors internship while attending the University of Massachusetts Amherst on an exchange program.*

Maggie Shar *is the part-time program coordinator and local food systems instructor for Fertile Ground. She recently received her master's degree from Antioch University New England with a concentration in Environmental Education and Social Justice.* ■