

Rethinking School Lunch: Education for Sustainability in Practice

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Abstract

This paper complements Fritjof Capra's paper in this issue, "Sustainable Living, Ecological Literacy, and the Breath of Life." It explores how concepts essential to ecological literacy can also guide strategies for overcoming barriers to introducing integrated, multidisciplinary pedagogy into school curricula. It examines how the crisis of childhood obesity and nutrition-related illness constitutes a point of systemic instability that creates an opportunity to integrate experiential learning and academics, and to promote ecological thinking while addressing mandated standards. It illustrates the contributions to environmental education that a small third-party organization with a clear conceptual framework can make.

Résumé

Cet article complète celui de Fritjof Capra, « Sustainable Living, Ecological Literacy, and the Breath of Life » de cette publication. Il analyse comment des concepts essentiels à l'apprentissage de connaissances écologiques viennent aussi guider des stratégies pour venir à bout d'obstacles à l'introduction de la pédagogie intégrée et multidisciplinaire dans les programmes d'enseignement. Il examine comment la crise de l'obésité chez les enfants et les troubles liés à la nutrition constituent une raison d'instabilité systémique qui donne une occasion d'intégrer un apprentissage et une scolarité par l'expérience et de promouvoir une pensée écologique tout en abordant les normes requises. Il illustre la contribution envers l'éducation écologique qu'un tiers plus petit, doté d'un cadre conceptuel clair, peut fournir.

Keywords: ecoliteracy; sustainability; nutrition; systems; curriculum

In "Sustainable Living, Ecological Literacy, and the Breath of Life" [hereafter, "Sustainable Living"] in this issue, systems theorist Fritjof Capra presents the conceptual framework for "education for sustainable patterns of living," the mission of the Center for Ecoliteracy, a public foundation located in Berkeley, California. This experiential, participatory, and multidisciplinary pedagogy is grounded in understanding the patterns and processes by which nature sustains life—what the Center calls "ecological literacy"—and developing the commitment and competences to apply this understanding to designing sustainable communities.

Describing pedagogy or designing curricula is one thing. Introducing it into the crowded agendas of actual school systems can be quite another. An examination of the development and application of one framework, the “Rethinking School Lunch” project of the Center for Ecoliteracy, may be instructive. It illustrates some of the obstacles to the inclusion of education for sustainable living in school curricula and suggests routes, perhaps unexpected, for responding to them. It also shows that the systems concepts that Capra identifies as essential to ecological literacy can guide strategies for integrating this teaching into curricula.

Barriers to Teaching Ecological Thinking

Whether our concern is global climate change, threats to biodiversity, economic globalization, or myriad other contemporary issues, we live in a world that needs leaders who have learned to understand complex systems, take long views, and “connect the dots”—to think ecologically. Capra identifies the ecological perspective as one oriented toward relationships, connectedness, and context, focused more on the whole than the parts. Unfortunately, education in many places is trending in just the opposite direction, toward reduction and fragmentation.

Since the passage of the No Child Left Behind Act in 2001 in the United States and similar legislation in other countries, public school curricula have narrowed dramatically to subjects covered in standardized tests. Even independent schools report being circumscribed by subject-specific requirements of the universities to which their students aspire.

For most people, school lunch doesn’t immediately come to mind as the most promising remedy to this situation. When the Center for Ecoliteracy began working with food in schools nearly 10 years ago, it frequently encountered the “snicker factor,” an “oh, please, you can’t be serious” response from school administrators faced with pressing issues such as low academic achievement, high drop-out rates, and violence on campus. (As it happens, nutritionists have suggested a link between such problems and poor nutrition, but not many educators made that connection.)

That situation is now changing. The well-documented epidemics of childhood obesity, early onset diabetes, and other diet-related diseases are tragedies; yet, they have commanded enough attention from the public and educators to create some opportunities to introduce more systemic strategies that address them. Improving school food has become a mainstream issue, from celebrity television chef Jamie Oliver’s widely publicized “Feed Me Better” campaign in Britain to regular news and commentary in the *Globe & Mail*, the *New York Times*, and local media.

In “Sustainable Living,” Capra notes that, every now and then, a natural or social system “will encounter a point of instability where there is either a

breakdown or ... a spontaneous emergence of new forms of order” (p. 16). The crisis of childhood obesity and diet-related illness is one such point.

Food service change in schools is gaining traction, but the process for instituting it is difficult and uneven. Districts are learning not only that improving meals is a complex effort, but also that making a lasting impact on children’s knowledge, behaviour, and attitudes requires more than changing the food on the plate. Five months after Jamie Oliver’s campaign inspired requirements in Britain that schools serve healthier lunches, the *New York Times* reported that many parents were simply replacing school food with nutritionally inferior but more popular home-packed alternatives (Lyll, 2006).

As important as better food are “hands-on,” as well as “minds-on,” experiences in which students actively develop an understanding of food systems and nutrition. To be nutritionally literate requires understanding how food grows, why some foods are more nutritious than others, differences in food from different sources, and the impacts of food production and marketing on the environment and on personal health.

From Gardens to the Lunchroom

The Center for Ecoliteracy didn’t initially seek involvement in school lunch. One of its early strategies consisted of identifying and supporting exemplary schools that were making environmental place-based projects, including gardens and watershed restoration, a focus for curriculum. As Capra writes in “Sustainable Living,” through such experiences, we become aware of how we are embedded in an ecosystem, in a landscape with a particular flora and fauna, in a particular social system and culture.

In 1995, Martin Luther King Middle School in Berkeley, one of the Center’s first grantees, provided an opportunity to address food more systematically. King principal Neil Smith had met Alice Waters, the charismatic chef, founder of world-famed Chez Panisse restaurant and tireless promoter of fresh, local ingredients, later dubbed “California Cuisine.” Waters was trained as a Montessori teacher and calls John Dewey a major influence; she has always seen her restaurant work as a form of education. “There are gardens in lots of schools,” she told Neil Smith. “There are kitchens. There are cafeterias. But there aren’t gardens and kitchens and cafeterias that are of a piece. I started to get the idea for an ecological curriculum run as a school lunch program that could transform education” (Stone, 2002, p. 40). She presented a bold vision, given that King didn’t even have a cafeteria at the time.

Eventually, the “Edible Schoolyard” blossomed at King, garnering international attention. The Center for Ecoliteracy became the Edible Schoolyard’s first funder, supporting its garden coordinator, then a team of teachers, to work on integrating curriculum with garden and kitchen experiences. Children experienced the natural cycles, learned to compost, and

discovered the satisfaction of sitting down to eat together. The Edible Schoolyard exploded one widespread assumption: that children are irretrievably addicted to junk food. In fact, they will eat—and love—nutritious fruits and vegetables, even unfamiliar ones, that they’ve grown and cooked themselves.

A study by J. Michael Murphy of Harvard Medical School, commissioned by the Center, concluded that students involved in the Edible Schoolyard showed greater gains in ecological understanding and greater overall academic progress than did students in a comparable school without such an initiative. Teachers reported better behaviour. Students who gained most in ecological literacy were eating more fruits and vegetables (Murphy, 2003).

At the same time, the Center discovered that the lessons taught in programs it was supporting were being contradicted by day-to-day school experiences. Lessons in the formal curriculum can be undone if they conflict with the “hidden curriculum”—what the school teaches, whether consciously or not—through its actions. Which lesson is most likely to tell students what the school really believes? The lecture in the classroom, or low-quality, unappetizing food, served in an unpleasant atmosphere in the cafeteria? The food pyramid chart on the classroom wall, or soft drink machines in the hallway and sugary snacks sold by parent groups to subsidize music programs and computer labs? Slogans about recycling, or overflowing trash bins?

Even at a school such as King, which has made a considerable effort to integrate curriculum around food, the meals served on campus have constituted a major obstacle. As one math teacher told me, “I felt so hypocritical trying to teach about nutrition and serving size or lessons designed around reading nutritional labels, then sending kids out to the snack bar for some just horrific lunch” (personal communication, November 13, 2006).

Canadian researchers have reached similar conclusions. A “Call to Action” by the School Nutrition Workshop Steering Committee of the Ontario Society of Nutrition Professionals reported, “[k]nowledge alone does not result in students making healthy food choices. Besides the formal curriculum which teachers use to address nutrition, there are two other levels—the hidden and parallel [external factors such as home, neighbourhood norms and mass media]” (Ontario Society of Nutrition Professionals, 2004, p. 16). The report cited the poor nutritional value of foods available in the school; inappropriate use of food as an incentive or reward; an increase in on-campus vending machines selling foods and beverages with minimum nutritional value; unsuitable locations and insufficient time to eat meals; and increased absenteeism, sleeping in class, eating disorders, and behavioural problems.

Solving for Pattern

The Center recognized that disconnections between schools’ formal teach-

ing and their actions are symptoms of patterns of deeper mental and social disconnections that interfere with efforts to live sustainably: actions disconnected from consequences, consumers from farmers, and health from environment.

In his essay “Solving for Pattern,” farmer/writer Wendell Berry (1982) distinguishes among “solutions” that worsen problems they are supposed to solve, those that initiate cascades of other problems, and those that “cause a ramifying series of solutions” (p. 137). A bad solution, he says, is designed for a single purpose. It acts destructively on the patterns that contain it. A good solution addresses the interlocking pattern in which it is embedded (Berry, 1982).

School food systems are rife with single-purpose solutions that generate new problems. Districts “solve” underfunding by demanding that food services break even, or generate surpluses, on minimal government subsidies for feeding poor children. The United States Department of Agriculture “solves” farmer income problems by buying surplus commodities (often high-fat cheese or meat) and offering them to schools. Schools abandon labour-intensive fresh food preparation and “solve” the problem of undernourished children by serving preprocessed and frozen food that has been shipped thousands of miles, burning fossil fuel and discharging air pollutants along the way. Processing leaches nutrients—and usually appearance and taste—from food, a problem that students “solve” by dumping it into the trash, where it rejoins the same packaging (50 percent of food costs, by some accounts) that it arrived in.

Schools “solve” poor academic performance by mandating more hours in class (sometimes by shortening lunch and exercise periods, though educators know that undernourished, unhealthy students perform poorly). Small farms, which could grow the fruits and vegetables that children need, struggle to survive, while school food dollars support agribusiness operations that are driving small farmers out of business. Farmland sold to developers is lost to agriculture, compromising communities’ sustainability.

But Berry also says that solving for pattern can initiate a ramifying series of solutions. In 1998, an opportunity arose in Berkeley to solve for pattern around food issues. In response to parents discontented with the quality and choice of food in the schools, the superintendent had begun meeting with parents and staff members. With facilitation and participation from the Center for Ecoliteracy, this process led in 1999 to adoption of the first district-wide school food policy in the United States (Berkeley Unified School District, 1999).

The policy-drafting process illustrates Fritjof Capra’s point that sustainability involves whole communities and requires co-operation, partnership, and networking. Co-operation, however, entails more than good intentions. The passion that drives parents and others to become activists can make coming to agreement difficult. Some participants in drafting the policy demanded requiring vegetarian entrées and all-organic food and banning bovine growth hormones, irradiation, and genetically modified

foods. Others opposed them, fearful of damaging the policy's credibility by insisting on unachievable goals. They eventually compromised, though not always easily, tempering the goals with qualifiers such as "to the maximum extent possible."

The policy sought to address food issues systemically. Among its goals and strategies: "Ensure that no student in Berkeley is hungry ... provide nutritious, fresh, tasty, locally grown food that reflects Berkeley's cultural diversity ... maximize the reduction of waste by recycling, reusing, composting, and purchasing recycled products ... integrate eating experiences, gardens, and nutrition education into the curriculum for math, science, social studies, and language arts at all grade levels" (Berkeley Unified School District, 1999, pp. 234–236).¹

As the lead agency for a network of 17 community organizations and individuals, the Center for Ecoliteracy received a Department of Agriculture Community Food Security grant between 1998 and 2001 to create a "Food Systems Project" in Berkeley. The Center's executive director, the Berkeley superintendent of schools, and a former California legislator were designated as co-principal investigators. Many of the project's goals corresponded to those of the district food policy. The Food Systems Project network and the school district recorded several notable accomplishments: gardens in every district school, kitchen and cooking classes in 11 of the district's 16 schools, and school-to-farm field studies programs that took urban students to farms and brought farmers to classrooms.

While celebrating such accomplishments, it should be noted that many of the reforms envisioned by the Berkeley food policy remain unrealized, eight years after its passage. Substantive systems change can be slow, long-term work. As Capra describes in "Sustainable Living," every system achieves its own dynamic balance, adjusting to disturbances and resisting change. Public school systems may be particularly resistant—by design. Ann Evans, a former California Department of Education official, observed as much in a talk at a Center for Ecoliteracy-sponsored conference: "I believe that schools are among the most conservative of our society's democratic institutions, and therefore among the slowest to change. Perhaps that's for good reason: they are designed to resist experimentation on our most precious natural resource, our children" (Evans, 2005, p. 251).

Although its reforms have yet to be fully implemented, the fact that the food policy was enacted and remains on the books has kept the issue alive in the district. Tom Bates, now mayor of Berkeley, was project director of the Food Systems Project when the policy was formulated. "We were working to create a policy that could outlast particular individuals," he says (quoted in Stone, 2002, p. 43). The policy has done that, through serious financial crises, labour disputes, and turnover in Berkeley Unified School District's administration (including two superintendents and three directors of child nutrition services). When the district hired its most recent food service director in 2005, one primary criterion was the candidate's potential to do

more to reach the food policy's goals than had previous directors.

Meanwhile, the Center for Ecoliteracy recognized the need to expand its efforts beyond Berkeley. To build networks and seek bioregional solutions, it convened a "Fertile Crescent Network" of grantees and allies from five counties on the urban/rural frontier of the San Francisco Bay Area. Members of the network have worked individually and in county subgroups to "migrate" the work begun in Berkeley, from developing district food policies to sharing experiences with farm-to-school projects.

Rethinking School Lunch

By 2003, the Center for Ecoliteracy had accumulated enough experience and research to consolidate and disseminate much of its knowledge through a new initiative, "Rethinking School Lunch." One of the first products of the Rethinking School Lunch program was a 175-page *Rethinking School Lunch Guide*, which may be found at the Center for Ecoliteracy website (www.ecoliteracy.org). In its analysis of school food systems, the guide applies many of the ecosystem principles identified by Capra in "Sustainable Living," including networks, nested systems, interdependence, development, and emergence.

The *Rethinking School Lunch Guide* identifies interrelated dimensions vital to improving ecological knowledge, school food, academic performance, and the well-being of children. The guide encompasses 10 such dimensions: food policy, curriculum integration, food and health, finances, facilities design, the dining experience, professional development, procurement, waste management, and marketing and communications. Addressing all of them can be arduous, because it challenges the longstanding operating structures of most school systems. Says Evans (2005):

School district operations are generally divided into two "sides of the house"—the business side, where school food service, maintenance and operations, personnel, and budget functions reside, and the educational (or curriculum and instruction) side, where everything that goes on inside the classroom resides. The two sides don't have much communications circuitry established between them, as they usually need very little communication to get their jobs done. So when we start talking systemically (about food as curriculum or waste reduction as curriculum, for instance), we're reconnecting parts to the whole, and we will need to establish new communications circuitry as well as credibility. (p. 255)

In the online guide, experts and practitioners suggest ways to overcome obstacles, showcase success stories, and offer resources for further exploration. Simultaneously addressing all 10 dimensions has proved to be beyond the capacity of most districts. Because the dimensions are interrelated, though, a district—or groups of concerned parents, teachers, nurses, or others—can begin with any one of them. If their efforts persist long enough,

they will confront them all.

Educators from around the world have reported the usefulness of this resource. The Center has been invited to present the Rethinking School Lunch program to numerous gatherings, including the North American Association for Environmental Education, Slow Food's Terra Madre conference, the Ecological Farming Association, Rethinking Schools, the California Food Service Association, the Kellogg Foundation Food and Society Conference, the Bioneers Conference, the Mayo Clinic, the International Society for the Systems Sciences, the California Science Teachers Association, the California School Boards Association, the United States Department of Agriculture's Nutrition Education conference, and the National Science Teachers Association.

In 2004, the Center launched "Thinking Outside the Lunchbox," an ongoing series of concise essays that extends the Rethinking School Lunch program through the perspectives of leading thinkers, educators, and policy makers. Its contributors probe the links among education for sustainable living, childhood obesity and other health issues, human and ecological communities, and access to safe, fresh, and nourishing food. New essays appear in the Center's monthly newsletter and are archived on the Center's website.

In 2004, Berkeley's board of education adopted the School Lunch Initiative, a partnership of Berkeley Unified School District, the Chez Panisse Foundation, and the Center for Ecoliteracy, in collaboration with Children's Hospital Oakland Research Institute. The School Lunch Initiative calls for sweeping changes in the school meal service, supported by the Chez Panisse Foundation, which underwrote hiring Ann Cooper as director of child nutrition services; she moved within a few months to ban junk food, re-establish salad bars on campuses where they had been discontinued, and dramatically improve the quality of the food served in the district.

Linking Food, Culture, Health, and the Environment

As difficult as changing the food service is—and it can be very difficult—integrating food into the curriculum can be even more daunting. The Center for Ecoliteracy's primary role in the School Lunch Initiative has been to encourage and assist the district to use the spotlight on food as a chance to integrate curriculum. In response to various obstacles, the Center has taken several tacks. It has organized several workshops for Berkeley Unified School District teachers and administrators. A Center for Ecoliteracy matching grant enabled Berkeley Unified School District to release a master teacher from teaching responsibilities for one year to serve the project as teacher-in-residence at the Center.

The Berkeley Unified School District set a goal of creating a district-wide science curriculum based on the School Lunch Initiative by 2009, but is having trouble progressing toward that goal. Berkeley has a long history of

schools acting autonomously, making district-wide change difficult. The Center has accordingly modified its approach, choosing to focus on pilot schools whose principals and teachers are committed to the program.

Other obstacles to integrated curricula begin with state-mandated standards. The difficulty with state standards, according to Neil Smith, now the Berkeley Unified School District director of curriculum and development, “is that they’re a piecemeal list It’s like you have a separate list for math, for language arts, for English language development, or social studies, for science, for the visual and performing arts, for P.E., and for health, and the list becomes so long, particularly as you move to the upper grades, it feels like a laundry list, and it becomes overwhelming for the teacher” (personal communication, August 12, 2005).

The Center has suggested that food offers one possible focus around which curricula could be integrated. It is of course not the only one, but it is an apt choice. Food is as basic as sustainability gets. Eating is an activity shared by all students; its relevance to their lives is evident. It lends itself to experiential learning in gardens and kitchen classrooms. Learning where food comes from and how it reaches the table requires understanding fundamental ecological processes discussed by Capra in “Sustainable Living”: energy flows, nutrient cycles, how one organism’s waste becomes another’s food. Food is an appropriate entrée to teaching the interrelationship of educational, agricultural, economic, social, and political systems.

Standards and testing, much as many teachers dislike them, are not going away soon. The Center for Ecoliteracy has therefore sought to demonstrate that standards can be addressed through integrated curricula combining gardens, kitchen classrooms, lunchrooms, and traditional classrooms. The resulting curricular framework, “Linking Food, Culture, Health, and the Environment,” includes matrices that map grade-specific state standards in science, history/social science, math, language arts, and health against the exhaustive cataloguing of the American Association for the Advancement of Science (1993) National Science Benchmarks, which articulate what students should know and be able to do at each grade level.

“Linking Food, Culture, Health, and the Environment” is organized around American Association for the Advancement of Science “clusters” such as the “Living Environment: Flow of Energy and Matter,” and strands (matter cycles, food webs, etc.) that are most compatible with the ecological concepts that the Center for Ecoliteracy has identified as central to education for sustainable living. The framework is ambitious and comprehensive. The Center has awarded professional development grants to pay for substitute teachers, in order to offer teachers release time to attend professional development sessions and engage in collaborative planning. Workshops and a summer institute underwritten by the Center introduced the American Association for the Advancement of Science tools and the “Linking Food, Culture, Health, and the Environment” framework, and offered time for

school teams to co-operatively plan.

In the course of offering professional development workshops, the Center recognized teachers' difficulties in assimilating this framework through a short-term exposure. To make this material more accessible, in 2006 the Center produced a *Linking Food, Culture, Health, and the Environment* visual guide that vividly illustrates how an integrated curriculum and enriched school environment can link student learning and well-being while enhancing understanding about the natural world. (It should be noted here that matters of design and appearance are not inconsequential. The Center has repeatedly received feedback that the elegance of its visual materials makes them more likely to be used as resources. Just as fostering emotional appreciation for the beauty of nature is a strategy for cultivating ecological literacy, designing visually striking websites and publications is an important and often overlooked strategy for communicating about ecological literacy.)

In addition to working with Berkeley educators, the Center for Ecoliteracy designed a two-day Rethinking School Lunch seminar for a wider audience. The first time it was offered, in 2006, it attracted attendees from as far away as Malawi and Japan. Participants represented business and government, as well as food service directors, parents, teachers, and administrators from districts that educate and feed more than a million students in the United States and three million children in Africa.

Significantly, some of the most appreciated presenters at the seminar were food service directors from places such as Portland, Oregon and Riverside, California who had achieved significant reforms without assistance from the Center or from Chez Panisse Foundation. The Center sometimes faces challenges due, ironically, to its Berkeley location. Some say, "Sure, but that's Berkeley," arguing that few other places offer the same combination of progressive political climate, a history of activism, and devotion to healthy eating as the home of the University of California and Chez Panisse. Mayor Tom Bates counters the "only in Berkeley" argument: "Whatever happens in Berkeley happens four years later everywhere else," he says. "Smoking bans in restaurants? Curb cuts for wheelchairs? People said those would never work outside of Berkeley either" (personal communication, January 2002). Still, the Center has learned that its objectives are sometimes seen as more credible when presented by innovators who have accomplished them in other locales.

Another Center strategy has been to review curricula already available or under development. The one identified so far as most consistent with Center learning objectives is LiFE (Linking Food and the Environment), a standards- and inquiry-based curriculum developed by Teachers College Columbia University. The Center has supported piloting LiFE modules, sponsored workshops to introduce teachers to LiFE, and is collaborating with Teachers College to find resources to publish LiFE and to explore a national curriculum-related network combining the Rethinking School Lunch program and LiFE.

Restructuring the School Day

Some obstacles to accomplishing the aims of Rethinking School Lunch are more structural than conceptual. Schools are complex nonlinear systems; changing one part has repercussions in unexpected places. For instance, John Muir Elementary School in Berkeley, under the leadership of two successive principals, has volunteered to pilot elements of the School Lunch Initiative, understanding lunch to be part of the educational day. Some of their most significant early steps were structural.

One simple-seeming but dramatic change entailed reversing the order of lunch and recess. In most schools, children eat first, then go to recess. In their eagerness to get to the playground, says teacher Stephen Rutherford, “children would be claiming to be done with their lunch in five minutes, with a huge amount of food waste, bag lunches uneaten, school lunches just tossed, because their only mindset was to get out on the play yard and have fun” (personal communication, September 25, 2006).

A paper distributed at a Center for Ecoliteracy workshop reported research showing that students who have recess before lunch eat more, waste less, and eat more foods containing calcium and vitamins such as milk, vegetables, and fruit (National Food Service Management Institute, 2004). John Muir elected to make the switch. Their experience bore out the research, along with initiating, in Berry’s words, a “ramifying series of solutions” (1982, p. 137). The lunchroom became less chaotic and more pleasant. Aides spent less time calming children down and lining them up to go to the play yard—in the end, children spent more time eating *and* more time playing. Play yard supervisors observed less fighting, and teachers reported fewer children returning to the classrooms angry and upset after recess.

Muir staff extended the lunch period by 10 minutes, which required adjusting the whole daily schedule, so that classroom teachers could join their students for the last 10 minutes of lunch and supervise clean-up, recycling, and composting, making an ecological lesson out of that experience. Even the walk from the play yard to the lunchroom became a symbolic re-enactment of food pathways, taking children through the garden and then the kitchen classroom on their way to lunch.

After a year with the new schedule, the Muir teachers made another adjustment with pedagogical payoffs. The small lunchroom, with poor acoustics, was still too noisy for comfortable conversation. So they designed a schedule in which classes rotate day-by-day among the lunchroom, the kitchen classroom (converted at lunchtime into a “café” with small tables and tablecloths), the garden, and a “picnic area” by a creek running through the campus.

According to Rutherford, “We’re trying to raise students, beginning in kindergarten, to have a different mental framework around lunch at school. We want them to think of it as an educational part of their day” (personal communication, September 25, 2006). When students eat in the garden, the

garden instructor facilitates conversation around concepts about food, harvesting, and humans' place in nature. When children eat by the creek, a teacher may read a story, but children are forever making spontaneous discoveries—spider webs glistening in the sun, a squirrel skittering in a tree, birds pecking at crumbs from their lunches—nature experiences for urban children who often don't get them.

One goal at John Muir is making “curriculum integration” natural and seamless. For instance, says Rutherford, “You can teach the water ‘cycle,’ but it’s always linear. A circle is as linear as a straight line. It comes back around, but that is simplistic to the point of misrepresentation; a *web* of flow is a better description” (personal communication, September 25, 2006). So Rutherford, the cooking teacher, and the garden instructor designed a combined class session, taught in the garden, in which fourth- and fifth-grade students experience the web of flow from three perspectives. With the gardening teacher, they see and feel the quantities of water gushing through a banana tree. Rotating to Rutherford’s station, they examine the flow of water through different types of soils. With the cooking teacher, they experience the flow of water through their own bodies by harvesting tomatoes from the garden, observing their juiciness, and eating a simple tomato tapenade they have prepared.

These experiences prepare them to return to the classroom and understand the “water cycle” in a more sophisticated way. Then they ask, “Where does the water in the garden come from?” (For most of the California growing season, it’s not directly from rain, though that is the answer most children give. It’s via a complex designed water system whose history and geography are part of the required fourth-grade standards.)

Conclusion: The Third-Party Change Agent

The history of the Rethinking School Lunch project illustrates both the potential and the limitations of interventions by a small third-party agent such as the Center for Ecoliteracy, which is not formally part of a school district. The outside agent has no authority to effect the changes it advocates. It can propose, but the district must agree (and “the district” comprises parties—board, administrators, teachers, staff—who do not always agree and sometimes actively resist co-operating with each other). The district’s structural design (such as the functional wall between “business” side and the “instructional” side) can hamper efforts to integrate. Both the third party and the school system are also constrained by forces over which neither has control, such as state standards.

On the other hand, a third party has certain advantages because it is not already immersed in maintaining the current system. It can offer a new vocabulary, such as a redefinition of “sustainability.” It can articulate curricular visions that arise from taking a longer view than is possible to participants

weighed down by day-to-day operating concerns. It can bring resources to temporarily free teachers from classroom responsibilities in order to plan collaboratively. It can identify leverage points in the linkages between policy, curricular integration, structural change, and professional development. A third party not engulfed in a system can support strategic experimentation and the emergence of networks extending beyond district boundaries, and can disseminate the lessons learned to wide audiences. It can offer examples of aesthetic designs that increase the impact of materials. It can draw from experiences in many systems to demonstrate the power of ecological understanding, and can inspire and encourage educators, wherever they are, to create and implement their own designs for education for sustainable living.

Notes

- ¹ Some credit the Berkeley food policy with inspiring a 2004 law mandating that all United States school districts adopt “wellness policies” covering school meals, physical education, and instruction connected to diet and health. In collaboration with Chez Panisse Foundation and Slow Food USA, the Center for Ecoliteracy developed an online *Model Policy Wellness Guide* (2005) to help parents and citizens influence the policies being written in their districts. By the deadline for having policies in place, more than 10,000 copies of the guide had been downloaded from the Center’s website.

Notes on Contributor

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