

Journal of Agriculture, Food Systems, and Community Development

Volume 2, Issue 3
Spring 2012

Special Topic:
***Food Systems and
Higher Education***

JAFSCD

Published online at www.AgDevJournal.com
New Leaf Associates, Inc.
ISSN 2152-0801 (online only)

Journal of Agriculture, Food Systems, and Community Development

Publisher and Editor in Chief: Duncan L. Hilchey duncan@NewLeafNet.com / +1-607-342-0259 / Skype: duncan.hilchey

Managing Editor: Amy S. Christian / amy@NewLeafNet.com / +1-607-342-0258 / Skype: amy.christian295

Advisory Committee

Laura Brown, University of Wisconsin Cooperative Extension (USA)*
Kate Clancy, Minnesota Institute for Sustainable Agriculture (USA)
Pierre Clavel, Cornell University (USA)
Nevin Cohen, The New School (USA)*
David Conner, University of Vermont (USA)*
Cornelia Butler Flora, Iowa State University (USA)
Julia Freedgood, American Farmland Trust (USA)*
Gilbert W. Gillespie, Cornell University (Retired) (USA)*
R. Bruce Gregory, Farmer, Mitchell Bay Farm & Nursery (USA)*

Shermain Hardesty, University of California (USA)*
John Ikerd, University of Missouri, Columbia (Emeritus) (USA)
Anupama Joshi, National Farm to School Network/Occidental College (USA)*
Larry Lev, Oregon State University (USA)
Joseph McIntyre, Ag Innovations Network (USA)*
Ken Meter, Crossroads Resource Center (USA)*
Rich Pirog, Iowa State University (USA)
Ken Robinson, Clemson University (USA)
John Smithers, University of Guelph (Canada)
Ricardo Salvador, Union of Concerned Scientists (USA)

G. W. (Steve) Stevenson, University of Wisconsin-Madison (USA)
Dawn Thilmany McFadden, Colorado State University (USA)
Mark Winne, Community Food Security Coalition (USA)
Larry Yee, Fairhaven Strategy Group (USA)
Rami Zurayk, American University of Beirut (Lebanon)*
† Also writes a regular column

* Also serves on editorial committee

† Also writes a regular column

Editorial Committee

Paivi Abernethy, University of Waterloo (Canada)
Mahbubul Alam, Ehim University (Japan)
Sandip Banerjee, Hawassa University (India)
Herb Barbolet, Simon Fraser University, Centre for Sustainable Community Development (Canada)
Mary Margaret Barth, Responsible Source, UIUC (USA)
Ricky Martin Bates, Penn State University (USA)
Dani E. Battle, Patriot RC&D (USA)
Molly K. Bean, The Ohio State University (USA)
Mihaela Begea, Institute of Food Research (Romania)
Anne C. Bellows, University of Hohenheim (Germany)
Eliav Bitan, National Wildlife Federation (USA)
Colleen Boodleman, University of Arizona (USA)
Rachelle Bostwick, Farmer, Earthkeeper Farm (USA)
Rebecca Briggs, Biodynamic Farming and Gardening Association (USA)
Mladen Brnčić, University of Zagreb (Croatia)
Megan Carney, U.C.–Santa Barbara (USA)
Marcia Caton Campbell, Center for Resilient Cities (USA)
Gina Cavallo Collins, Farmer, Victory Farms, Inc. (USA)
Christine C. Caruso
Elizabeth Church, Jacobs Farm/DelCabo (USA)
Renee Ciulla, Instituto Ricerche Economico Sociale (USA)
Sean Connelly, Alberta Social Economy Research Alliance Centre for Sustainable Community Development (Canada)
Christine Costello, Cornell University (USA)
Sasha Cuerda, University of Illinois at Urbana-Champaign (USA)
Hendrik deWilde, The Gabriola Commons (Canada)
Michael L. Dougherty, Illinois State University (USA)
Leslie Duram, Southern Illinois University (USA)
Ayman Ekram Fahim, Suez Canal University (Egypt)
Patti Taranto Erickson, Salisbury University (USA)
Mark Estep, Montana Mobile Processing Company (USA)
Anna Fedman, University of California–Berkeley (USA)
Melissa Fernandez Arrigoitia, London School of Economics (UK)
Ian Finch, University of Montana (USA)
Rok Fink, Univerza v Ljubljani (Slovenia)
Katherine Flynn, SAFE Consortium (France)
Danielle Nicholas Fisher, Eagle Ridge Ranch (USA)
Nancy Franz, Iowa State University (USA)
Lynn Fredericks, FamilyCook Productions (USA)
Jasenska Gajdoš Kljusurić, University of Zagreb (Croatia)
Hanna Garth, University of California–Los Angeles (USA)
Stephan Goetz, Northeast Regional Center for Rural Development (USA)

Carol Goland, Ohio Ecological Food and Farm Association (USA)
Angela Gordon Glore, AmeriCorps/VISTA (USA)
Sheila L. Gray, Washington State University–Lewis County Extension (USA)
Edmund Harris, Clark University (USA)
Leslie Hossfeld, University of North Carolina–Wilmington (USA)
Susanne Howard, Missouri State University (USA)
Guiping Hu, Iowa State University (USA)
Alan Hunt, Newcastle University/Local Food Strategies LLC (UK)
Lauren Hunter, Coop. Extension, University of Idaho–Blaine County (USA)
Lucilla Iacumin, University of Udine (Italy)
Valerie Imbruce, Bennington College (USA)
George Irwin, Green Living Technologies (USA)
Becca Jablonski, Cornell University (USA)
Douglas Jack, Food Producer, Sustainable Development Corp. (Canada)
Joel Kimmons, Centers for Disease Control and Prevention (USA)
Franz Klingender, Canada Agriculture Museum (Canada)
Jasenska Gajdoš Kljusurić, Prehrambeno Biotehnološki Fakultet (Croatia)
Fiona Knight, Private food system consulting practice (Canada)
Uma Koirala, Tribhuvan University (Nepal)
Jane Kolodinsky, University of Vermont (USA)
Laura Lavid, American Community Gardening Association (USA)
John D. Lee, Farmer, Allandale Farm, Inc. (USA)
Kristi Lekies, The Ohio State University (USA)
Dale Levering, LCC International University (Lithuania)
Charles Levkoe, University of Toronto (Canada)
Matt Loble, University of Exeter (UK)
Bohdan Lojka, Czech University of Life Sciences (Czech Republic)
Annelies Lottman, Brooklyn (USA)
Samya Lutz, Whatcom County (USA)
Uford A. Madden, Florida A&M University (USA)
Lisa Markowitz, University of Louisville (USA)
Derek Masselink, Masselink Environmental Design (Canada)
Florentina Matei, Universitatea de Stiinte Agronomice si Medicina Veterinara - Bucuresti (Romania)
Mike McDonald, Florida Gulf Coast University (USA)
Jesse C. McEntee, Cardiff University (UK)
Laura McGough, University of Maryland, Baltimore County (USA)
Kim McMann, Berkshire Community Action Council (USA)
Bethann G. Merkle, Missoula Urban Demonstration Project (USA)

Bernadette Montanari, University of Kent, Canterbury (UK)
Alfonso Morales, University of Wisconsin–Madison (USA)
Vicki Morrone, Michigan State University (USA)
Heidi Mouillesseaux-Kunzman, Cornell University (USA)
Phil Mount, University of Guelph (Canada)
Scot Nelson, University of Hawaii at Manoa (USA)
Kim L. Niewolny, Virginia Tech (USA)
Kimberly Norris, University of Maryland (USA)
Lydia Oberholtzer, Penn State University (USA)
Fernando Ona, Indiana University (USA)
Aleck Ostry, University of Victoria (Canada)
Isidro Ovando-Medina, Center of Biosciences, University of Chiapas (Mexico)
Tapan B. Pathak, University of Nebraska (USA)
Mary Peabody, Northeast Regional Center for Rural Development (USA)
François Pelatan, AMAP Dordogne (France)
Jan Perez, University of California–Santa Cruz (USA)
Robert Perry, University of Kentucky (USA)
Greg Pillar, Queens University of Charlotte (USA)
Michael Pinto, Osborn Architects (USA)
William A. Powers, Nebraska Sustainable Agriculture Society (USA)
Madeleine Pullman, Portland State University (USA)
Masud Parves Rana, Rajshahi University (Bangladesh)
Taylor Reid, Michigan State University (USA)
Kristin A. Reynolds, The New School, New York (USA)
David Richey, Lane Council of Governments (USA)
Suzana Rimac Brnčić, University of Zagreb (Croatia)
Antonio Roman-Alcalá, Alemany Farm (USA)
Natalie R. Sampson, University of Michigan, School of Public Health (USA)
Valerie M. Scopaz, VMS Planning Services (USA)
Uma i Shankari, Rashtriya Raithu Seva Samithi, a farmers' organization (India)
Christopher Sneed, The University of Tennessee Extension–Blount County (USA)
Garry Stephenson, Oregon State University (USA)
Bill Swanson, Valentine Hill Farm (USA)
Diana Vergis Vinh, Public Health Department, Seattle (USA)
Gerald W. Warmann, South Dakota State University (USA)
E. Christian Wells, University of South Florida (USA)
Robert Wengronowitz, University of Chicago (USA)
Melissa White Pillsbury, Maine Organic Farmers and Gardeners Association (USA)
Mollie Woods, Michigan State University (USA)
Jen Wrye, Carleton University (USA)
Steve Young-Burns, PastureLand Cooperative and freelance food writer (USA)
Lorna Zach, University of Wisconsin (USA)

The *Journal of Agriculture, Food Systems, and Community Development* is published quarterly (Summer, Fall, Winter, Spring) by New Leaf Associates, Inc., ISSN 2152-0801 (online only). Corporate office: 295 Hook Place, Ithaca, NY 14850 USA

Online subscriptions: Farmer/Student/Sole Proprietor/Retiree: US\$39; Agency/Nonprofit Staffperson: US\$49; Faculty/Consultant/Corporate Employee: US\$69; Institutional Library: US\$239–US\$693 (based on FTE students).

Copyright © 2012 by New Leaf Associates, Inc. All rights reserved. The publisher assumes no responsibility for any statements of fact or opinion expressed in these published papers. No part of this publication may be reproduced, stored, transmitted, or disseminated in any form or by any means without prior written permission from New Leaf Associates, Inc. For permission to reuse material from JAFSCD, please go to www.copyright.com or contact the Copyright Clearance Center, Inc. (CCC), 222 Rosewood Drive, Danvers, MA 01923 USA; +1-978-750-8400. CCC is a not-for-profit organization that provides licenses and registration for a variety of uses.



Contents / Volume 2, Issue 3 / Spring 2012

On the cover: A Virginia Tech student in the Introduction to Civic Agriculture course, ALS 2204, visits the Hale Y Community Garden with Garden Coordinator Jenny Schwanke (at right). Caitlin Miller (on left) is an undergraduate student in the College of Agriculture and Life Sciences at Virginia Tech. Kim Niewolny is the lead instructor and Susan Clark is a member of the teaching team for the 2204 course. The Hale Y is one of Virginia Tech's premier service-learning sites for the course and for the Civic Agriculture and Food System minor. See the paper *Sustainable Agriculture Education and Civic Engagement: The Significance of Community-University Partnerships in the New Agricultural Paradigm* in this issue. Photo by Kelsey Kradel

In This Issue: *Higher Education and Food Systems: A Tentative But Growing Relationship* / Duncan Hilchey 1

Columns

The Economic Pamphleteer: *Sustainability in Higher Education: Beyond Going Green* / John Ikerd 5

Views from the Food System Frontier: *The Emergence of a Field* / Joseph McIntyre 9

Metrics from the Field: *Learning Together* / Ken Meter 11

Special Topic: Higher Education and Food Systems

Sustainable Agriculture Undergraduate Degree Programs: A Land-Grant University Mission / Krista Jacobsen, Kim Niewolny, Michelle Schroeder-Moreno, Mark Van Horn, Alison Harmon, Yolanda Chen Fanslow, Mark Williams, and Damian Parr 13

Sustainable Agriculture Education and Civic Engagement: The Significance of Community-University Partnerships in the New Agricultural Paradigm / Kim Niewolny, Julie Grossman, Carmen Byker, Jennifer Helms, Susan Clark, Julie Cotton, and Krista Jacobsen 27

Engaging Values in Sustainable Agriculture and Food Systems Education: Toward an Explicitly Values-Based Pedagogical Approach / Ryan Galt, Susan Clark, and Damian Parr 43

Internationalizing Sustainable Agriculture Education / Michelle Schroeder-Moreno, Susan Clark, Carmen Byker, and Xin Zhao 55

The Learning Gardens Laboratory: Teaching Sustainability and Developing Sustainable Food Systems Through Unique Partnerships / Heather Burns and Weston Miller 69

Building a Food Studies Program: On-the-Ground Reflections from Syracuse University / Evan Weissman, Leigh Gantner, and Lutchmie Narine 79

continued

<i>Living Concrete/ Carrot City: An Exhibition Platform as a Growing Medium</i> / Nevin Cohen and Radhika Subramaniam	91
<i>Building Sustainable Food Systems in a Single Bottom-Line Context: Lessons from SEED Wayne, Wayne State University</i> / Kameshwari Pothukuchi	103
<i>Community Engagement from the Ground Up: An Interdisciplinary Service-Learning After-School Garden Program</i> / Shari Miller, Jung Sun Lee, and David Berle	121
<i>Critical Reflections on Experiential Learning for Food Justice</i> / Leslie Gray, Joanna Johnson, Nicole Latham, Michelle Tang, and Ann Thomas	137
<i>Walking the Talk of Food Systems at a Small Land-Grant University: Overcoming Process Barriers to a Transdisciplinary Approach</i> / Jane Kolodinsky, Naomi Fukagawa, Erin Roche, Cynthia Belliveau, and Hayley Johnson	149
Open Call	
<i>The “Buy Local” Challenge to Institutional Foodservice Corporations in Historical Context</i> / Sarah Martin and Peter Andrée	161
<i>The Food Policy Audit: A New Tool for Community Food System Planning</i> / Jennifer O’Brien and Tanya Denckla Cobb	177
<i>Access to Sustainably Produced Food: An Investigation of Organic Food Availability in Manhattan, New York</i> / Laura Mirsch and Carolyn Dimitri	193
Book Review	
<i>The End of Local? Review of Local Dollars, Local Sense</i> by Michael Shuman / Review by Ken Meter	211

IN THIS ISSUE

DUNCAN HILCHEY

Higher education and food systems: A tentative but growing relationship

Published online 21 June 2012

Citation: Hilchey, D. L. (2012). Higher education and food systems: A tentative but growing relationship [Editorial]. *Journal of Agriculture, Food Systems, and Community Development*, 2(3), 1–3.
<http://dx.doi.org/10.5304/jafscd.2012.023.019>

Copyright © 2012 by New Leaf Associates, Inc.

Recently I was a guest lecturer on food systems in a new seminar in the Department of City and Regional Planning at Cornell University. This was the beginning of the semester and only the second class. The department had never offered a course devoted to food systems before, and it was a bit of an experiment. My assignment as an alum of this department who had a specialty in food systems was to help introduce the topic. I had heard there was a lot of interest across the campus and the class might be a little full, but I was not prepared for the standing-room-only crowd in the classroom. I had to ask students to step aside so I could write on the blackboard.

This had nothing to do with me, of course; the students from both the public and private colleges of Cornell University are part of the enormous wave of interest in the interdisciplinary field of food systems across the country. I should have seen this coming, since my colleague (and JAFSCD advisor) Gil Gillespie, who taught his final *Agriculture, Food, and Society* class in the Department of Development Sociology at Cornell this spring, has been seeing the numbers of students signing up for this course steadily rise over the last five years.

Integrating environmental, social, and economic spheres, food systems has an intrinsic appeal to students, and it offers a powerful lens through which to understand communities, evaluate the human condition, unite behind a common cause — and generally make the world a better place. It is also attractive to a growing cadre of young faculty who are equipped with the art and skill of interdisciplinary work. In this issue we feature a substantial collection of papers highlighting some of the cutting edge work of leading educators and researchers across North America.

The Sustainable Agriculture Education Association (SAEA) was very quick to respond to this call for papers. A group of its members gathered last year to take stock of the state of the art at land-grant universities, and they captured the key themes of this workshop in a set of four papers. In their introductory piece, *Sustainable Agriculture Undergraduate Degree Programs: A Land-Grant University Mission*, **Krista Jacobsen, Kim Niewolny,**

Michelle Schroeder-Moreno, Mark Van Horn, Alison Harmon, Yolanda Chen Fanslow, Mark Williams, and Damian Parr provide an overview to the emergence of sustainable agriculture education and the current opportunities and challenges SA education programs face. In *Sustainable Agriculture Education and Civic Engagement: The Significance of Community-University Partnerships in the New Agricultural Paradigm*, **Kim Niewolny, Julie Grossman, Carmen Byker, Jennifer Helms, Susan Clark, Julie Cotton, and Krista Jacobsen** draw upon five LGU-based SA education programs to highlight civic engagement strategies. Next, **Ryan Galt, Susan Clark, and Damian Parr** encourage new ways of teaching and learning through a values-based curriculum in *Engaging Values in Sustainable Agriculture and Food Systems Education: Toward an Explicitly Values-Based Pedagogical Approach*. Rounding out the SASE collection is *Internationalizing Sustainable Agriculture Education*, in which **Michelle Schroeder-Moreno, Susan Clark, Carmen Byker, and Xin Zhao** explore the benefits and approaches to integrating international learning experiences into SA education.

In *The Learning Gardens Laboratory: Teaching Sustainability and Developing Sustainable Food Systems Through Unique Partnerships*, **Heather Burns and Weston Miller** describe the pedagogical principles of the innovative Learning Gardens Laboratory, a collaboration of two Oregon-based public universities. In their reflective essay *Building a Food Studies Program: On-the-Ground Reflections from Syracuse University*, **Evan Weissman, Leigh Gantner, and Lutchmie Narine** describe their experiences in establishing a food studies program at a leading private university. **Nevin Cohen and Radhika Subramaniam** offer a liberal arts view of integrating food and agriculture into city life in *Living Concrete/Carrot City: An Exhibition Platform as a Growing Medium*. In *Building Sustainable Food Systems in a Single Bottom-Line Context: Lessons from SEED Wayne, Wayne State University*, **Kami Pothukuchi** takes a candid look at the success and challenges of one of the country's most innovative town-gown programs. **Shari Miller, Jung Sun Lee, and David Berle** describe their efforts to develop a service-learning garden program in one of the country's most impoverished counties in *Community Engagement from the Ground Up: An Interdisciplinary Service-Learning After-School Garden Program*. Describing Santa Clara University's forays into experiential learning around food justice programming in communities of color, **Leslie Gray, Joanna Johnson, Nicole Latham, Michelle Tang, and Ann Thomas** describe the Bronco Urban Gardens (BUG) in *Critical Reflections on Experiential Learning for Food Justice*. Our final special topic call paper is *Walking the Talk of Food Systems at a Small Land-Grant University: Overcoming Process Barriers to a Transdisciplinary Approach* by **Jane Kolodinsky, Naomi Fukagawa, Erin Roche, Cynthia Belliveau, and Hayley Johnson**, who describe the experiences of the University of Vermont in taking food systems research and education to the next level.

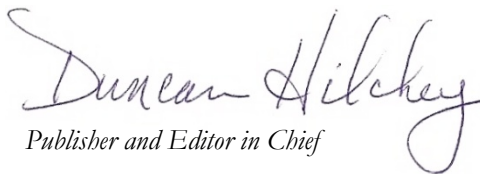
Among our open call papers, **Sarah Martin and Peter Andrée** provide an in-depth look at the evolution of institutional food service and reveal the formidable challenges of supplying local food universities and hospitals in *The "Buy Local" Challenge to Institutional Foodservice Corporations in Historical Context*. In *The Food Policy Audit: A New Tool for Community Food System Planning*, **Jennifer O'Brien and Tanya Denckla Cobb** describe the development and trial of the food policy audit, a tool communities can use of inventory and identify gaps in local food policies. In *Access to Sustainably Produced Food: An Investigation of Organic Food Availability in Manhattan, New York*, **Laura Mirsch and Carolyn Dimitri** explore the availability of sustainably produced food through the use of geographic information systems to examine organic food access among African Americans in this highly stratified urban market.

JAFSCD columnists also addressed food systems and higher education. **John Ikerd** deftly suggests that higher education mimic regenerative living systems whose semipermeable boundaries offer dynamic interaction such as co-learning between student and instructor.

Likewise, **Ken Meter** looks at two contrasting models of knowledge building. One extracts resources from communities. Another, often practiced by extension educators, builds capacity both at the university and in the community by convening people to learn together. And **Joseph McIntyre** recognizes the positive changes taking place in academia but laments its “tight system” — loaded with creativity and talent, but often shackled by rules and protocols that prevent it from engaging in cutting edge “citizen science.”

Finally, **Ken Meter** reviews Michael Shuman’s *Local Dollars, Local Sense: How to Shift Your Money from Wall Street to Main Street and Achieve Real Prosperity*, in-depth stories showing how local investment options have been created over the past 35 years. Examples include Coastal Enterprises in Maine, Boston’s Wainwright Bank (now Eastern Bank), La Montanita Co-op in New Mexico, and the Organic Valley co-op of Wisconsin.

This was a particularly large issue, with 11 papers in response to the special topic call, and I would like to express my deep gratitude to all of our peer reviewers, including a number of ad hoc reviewers called upon to assist in handling the load. Thank you one and all for your contribution to JAFSCD and the growing field of food systems!



Publisher and Editor in Chief



THE ECONOMIC PAMPHLETEER JOHN IKERD

Sustainability in higher education: Beyond going green

Published online 25 May 2012

Citation: Ikerd, J. (2012). Sustainability in higher education: Beyond going green. *Journal of Agriculture, Food Systems, and Community Development*, 2(3), 5–7. <http://dx.doi.org/10.5304/jafscd.2012.023.009>

Copyright © 2012 by New Leaf Associates, Inc.

It is encouraging that a growing number of colleges and universities are making serious efforts to address questions of sustainability in their teaching, research, campus operations, and public relations programs. Some are building green buildings, buying green cleaning supplies, and competing in greenest campus contests. It is also heartening that food and agricultural issues have risen to prominence on green campuses, as food

services respond to student demands for local sourcing of foods, composting of food waste, and space for student gardens to produce foods by sustainable methods. While going green is necessary, it is not sufficient.

Authentic sustainability is about meeting the needs of the present without diminishing opportunities for the future. Everything that is used for meeting human needs ultimately must come from

John Ikerd is professor emeritus of agricultural economics, University of Missouri, Columbia. He was raised on a small dairy farm in southwest Missouri and received his BS, MS, and Ph.D. degrees in agricultural economics from the University of Missouri. He worked in private industry for a time and spent 30 years in various professorial positions at North Carolina State University, Oklahoma State University, University of Georgia, and the University of Missouri before retiring in 2000. Since retiring, he spends most of his time writing and speaking on issues related to sustainability with an emphasis on economics and agriculture. Ikerd is author of *Sustainable Capitalism; A Return to Common Sense; Small Farms Are Real Farms; Crisis and Opportunity: Sustainability in American Agriculture; A Revolution of the Middle; and the just-released The Essentials of Economic Sustainability*. More background and selected writings are at <http://web.missouri.edu/~ikerdj>.

Why did I name my column “**The Economic Pamphleteer**”? Pamphlets historically were short, thoughtfully written opinion pieces and were at the center of every revolution in western history. Current ways of economic thinking aren’t working and aren’t going to work in the future. Nowhere are the negative consequences more apparent than in foods, farms, and communities. I know where today’s economists are coming from; I have been there. I spent the first half of my 30-year academic career as a very conventional free-market, bottom-line agricultural economist. I eventually became convinced that the economics I had been taught and was teaching wasn’t good for farmers, wasn’t good for rural communities, and didn’t even produce food that was good for people. I have spent the 25 years since learning and teaching the principles of a new economics of sustainability. Hopefully my “pamphlets” will help spark a revolution in economic thinking.

either nature or society. The economy provides an efficient means of using natural and societal resources to meet human needs. Ecological integrity, while necessary, is not sufficient to ensure sustainability. A society that is lacking in social or economic integrity cannot sustain ecological integrity. Ecological, social, and economic integrity are inseparable dimensions of the whole of sustainability. Educational programs that focus on a specific ecological, social, or economic dimension of sustainability without effectively addressing the other two may be useful, but they do not address the fundamental question of sustainability.

Furthermore, the responsibility of current generations for the well-being of future generations is an inherently moral or ethical issue. Individuals have no economic or social incentives to invest for the benefit of those of the seventh or seventieth future generation. They won't be able to realize returns on such investments and may not even have any descendants in those generations. Authentic sustainability is deep sustainability; it questions the rightness and goodness of our relationships with other people and with nature. Such questions are the essence of sustainability. Educational programs that fail to address the ethical dimensions of sustainability fail to address authentic sustainability.

Many sustainability education programs fail to address alternative ways of thinking, or simply attempt to modify conventional thinking to accommodate the concepts of sustainability. Such programs fail to recognize that current ways of thinking are a root cause of the current lack of sustainability. To achieve authentic sustainability, societies must evolve to a new

understanding of how the world works and the place of humans within it. The paradigms that dominate current thinking view the world as a

**Paradigms for sustainability
must view the world as a
dynamic living organism
with many interrelated
and inseparable parts.
We humans are not apart
from but are part of that
holistic organism.**

complex mechanism with many interrelated but separable parts. While these paradigms have proven efficient in extracting economic value from nature and society, mechanistic systems are incapable of the self-renewal and regeneration essential for sustainability. Paradigms for sustainability must view the world as a dynamic living organism with many interrelated and inseparable parts. We humans are not apart from but are part of that holistic organism. Only living systems are capable of relying on solar

energy to renew and regenerate the resources of nature and society that must sustain the economy.

Sustainability education must go beyond an understanding of how to use natural and human resources more efficiently and even beyond substituting renewable for nonrenewable sources of energy. Educators must help students understand how to radically redesign current economic and social systems for sustainability.

Authentic sustainability in higher education will require very different ways of thinking and learning to accommodate a very different worldview.

The new ways of thinking and learning must mimic those of resourceful, resilient, regenerative living systems. Living systems are made up of components with semipermeable boundaries that are neither closed nor open but instead are selectively permeable. Relation-

**In collaborative learning,
some may be conveners and
others participants, but there
are no teachers or students;
all are co-learners.**

ships within living systems are nonlinear, meaning they are characterized by continuous feedback loops which create reoccurring patterns of acceleration, decay, and oscillation. Living systems are

self-organizing. They are not precisely predictable, but they have the capacity to learn and to evolve with purpose. Living systems have memory and emergent properties and behaviors that are not characteristic of the parts but arise from relationships within the whole. These new ways of thinking are typically referred to as systems thinking, but they relate specifically to thinking about living systems.

Collaborative learning or co-learning is a means of stimulating and cultivating the new ways of thinking necessary for sustainability. In collaborative learning, some may be conveners and others participants, but there are no teachers or students; all are co-learners. Collaborative learning encourages self-organization with an open flow of knowledge both among and between participants and conveners. It encourages involvement that augments self-acquired knowledge, intelligence, imagination, and intuition. It supports and promotes openness, honesty, and harmony. It creates learning communities where people feel free to share their intellects, ideas, inspirations, and their social and ethical values. Collaborative learning is fundamentally different from traditional paradigms of higher education.

While collaborative learning may sound ideal-

istic or infeasible in today's academic environment, it is not. Recent summer "unconferences" hosted by the Midwest Regional Collaborative for Sustainability Education have brought together practitioners of collaborative learning from a wide variety of educational institutions to share their ideas and experiences.¹ The international faculty of the

Nordic Agroecology master's program has developed a collaborative learning process which they characterize as dual learning ladders.² Instead of starting at the factual/conceptual and progressing toward application, they start in the middle of the traditional process by exposing students to real world experience. They respond to students' questions arising from those experiences to expand in both directions, toward the factual/conceptual and the applied. They also envision a corresponding ladder that describes personal

reflections of students arising from the learning process in clarification of their personal values and ethics. Thoughtful educators are beginning to address the challenges of authentic sustainability education in very practical ways. The challenge is to go beyond going green and radically redesign higher education to support and encourage these new ways of thinking and learning.

Thoughtful educators are beginning to address the challenges of authentic sustainability education in very practical ways. The challenge is to go beyond going green and radically redesign higher education.

¹ Midwest Regional Collaborative for Sustainability Education. (n.d.) MRCSE Home Page. Retrieved November 23, 2011, from <http://www.mrcse.org/>

² Lieblein, G., Arvid Breland, T., Østergaard, E., Salomonsson, L., & Francis, C. (2007). Educational perspectives in agroecology: Steps on dual learning ladder toward responsible action. *NACTA Journal*, 51(1), 37–44.
<http://www.umb.no/statisk/studietilbud/dual%20learning%20ladder.pdf>



VIEWS FROM THE FOOD SYSTEM FRONTIER

Emerging trends, dilemmas, and opportunities in the changing global food system

JOSEPH MCINTYRE

The emergence of a field

Published online 22 June 2012

Citation: McIntyre, J. (2012). The emergence of a field. *Journal of Agriculture, Food Systems, and Community Development*, 2(3), 9–10.
<http://dx.doi.org/10.5304/jafscd.2012.023.018>

Copyright © 2012 by New Leaf Associates, Inc.

January 24, 2012, may not go down as a particularly noteworthy day overall, but for the growing sustainable food systems field it marked an important milestone. On this day, the Community Food Security Coalition's venerable COMFOOD listserv (<http://www.foodsecurity.org/list.html>) announced it was separating job announcements that were routinely posted on the list into a new listserv, COMFOOD JOBS.

The emergence of a dedicated vehicle for posting jobs in sustainable food systems is a coming-of-age event for our field. In the few short

months since the listserv came online, over 400 jobs and related posts have gone on the list. The diversity of job titles, geographies, and education and experience requirements is extraordinary. Consider that in just June of this year job announcements have been made for positions ranging from a driver for a mobile livestock program in Taos, New Mexico, to a healthy food access expert in California, to a business manager for a New York-based food systems consulting firm. Farms, businesses, and community-based organizations are looking for everything from interns to experienced experts in creating the new food system.

The emergence of a new, dedicated field focused on the twin challenges of growing food in more sustainable ways as well as addressing the urgent health and food access needs of urban populations is requiring a new mix of skills and expertise. These jobs, taken together, call for a background that is part agroecology, part marketing, part community development, and all entrepreneurial.

Our university partners, as described in this issue of JAFSCD, are working hard to meet the

Joseph McIntyre is president of Ag Innovations Network, a California-based nongovernmental organization that focuses exclusively on developing and facilitating collaborations between interests in the food system to promote change in practices and policies. Trained as both an economist and an organization development professional, he works with food system leaders on complex change initiatives.

This is part of an **ongoing series** of columns by Mr. McIntyre on emerging trends, dilemmas, and opportunities in the changing global food system. He can be reached at joseph@aginnovations.org.

demands of these new positions as well as provide the underlying research that will help fuel innovation in the field. But it's not an easy task. The emergence of a new field, and some would argue a new paradigm, is never easy on the educational system.

One of the core challenges and frustrations practitioners in the field experience is trying to fit a fundamentally holistic and interdisciplinary set of research and practical questions into the traditional academic boundaries and even into the scientific method.

Just a few weeks ago, I had a vivid experience of this while facilitating a workshop on cover cropping in Midwest commodity agriculture. It turns out there is a huge opportunity to increase soil health, reduce water pollution, and provide additional habitat for a variety of species through the relatively simple practice of planting cover crops on fields that are traditionally left bare. However, champions for this practice consistently reported that their academic partners were well behind them in terms of providing research to support what they see with their eyes on their fields or extension support to help other farmers experiment with these new practices. In particular, they mentioned the challenge of studying highly diverse systems with multiple varieties of cover crops being grown simultaneously. Situations like this challenge traditional research methodologies. As I thought back to my own training as an economist, where our goal was to try to understand the economic system under conditions of *ceteris paribus* (with other things the same) by allowing only one variable to change, I could see that that method, which is similar in many ways to traditional science approaches, was hopelessly oversimplified for understanding these living systems.

The good news is that we have learned how to do interdisciplinary science, and good research is taking place. I am heartened by the work being produced at land-grant schools like the University of California–Davis in its Agricultural Sustainability

Institute, at private schools such as Tufts University in its Agriculture, Food, and Environment program, and at dozens of other institutions small and large that are reconfiguring their courses and, more importantly, their objectives to meet this new field head on.

That said, it can still be a frustrating and slow experience working with our academic partners. Caught as they are in their own institutional imperatives, ranging from tenure requirements to demands for publishing and the general disinvest-

ment that has been occurring in American public education for the past 20 years, universities and colleges find themselves with less flexibility than would be ideal to rise up to this new opportunity. I would describe this as a “tight system,” one that is loaded with potential and talent, but is often shackled by creativity-dampening rules and protocols.

I believe one of the keys to moving this field forward more

quickly is to re-envision the relationship between science and community. The growing field of citizen science and crowd-sourced information is opening new opportunities for both communities and academia. Many of the key research questions — and almost all of the job opportunities — in the new sustainable food system are to be found on small farms, urban rooftop gardens, new food distribution hubs, and in the plethora of experimentation that is already happening on the ground. These new settings call for new approaches. What we need is a vigorous partnership between civil society, the community at large, and academia to identify and answer together key questions that will enable our field to grow. From basic agronomic issues, to questions of how best to structure our new food businesses for economic viability, there is no shortage of work to do.

Our field is growing. The job postings highlight this. The question now is can we effectively train people for a new field that is being defined even as it forms. I believe we can, if we can lower the Ivory Tower just a bit.



**We need a vigorous partnership
between civil society, the
community at large, and
academia to identify and answer
together key questions that will
enable our field to grow.**



METRICS FROM THE FIELD

Blending insights from research with insights from practice

KEN METER

Learning together

Published online 19 June 2012

Citation: Meter, K. (2012). Learning together. *Journal of Agriculture, Food Systems, and Community Development*. Advance online publication. <http://dx.doi.org/10.5304/jafscd.2012.023.016>

Copyright © 2012 by New Leaf Associates, Inc.

In this issue, Ken Meter looks at two contrasting models of knowledge-building. One extracts resources from communities. Another, often practiced by extension educators, builds capacity both at the university and in the community by convening people to learn together.

In a previous column (volume 2, issue 2), I showed how the food the economy extracts resources from communities (Meter, 2012). When this is true, the essential core of food system work is to build capacity at the grassroots — especially in those rural and inner-city areas that have been the most depleted, or most marginalized.

Ken Meter, president of Crossroads Resource Center, has taught economics at the University of Minnesota and the Harvard Kennedy School. He is one of the most experienced food system analysts in the U.S., having produced 83 regional and state food system assessments in 30 states, focused on geographic farm and food economies. A member of the Alliance for Building Capacity, he is also the author of *Hoosier Farmer? Emerging Food Systems in Indiana*.

My basic rule is that more capacity should be built in the community that is intended to be “served” by a given project than in the partnering university or nonprofit. Furthermore, the work should leverage and add to existing assets in the community, rather than undermining them through change.

Even for those scholars who dedicate their careers to community-building, work at the grassroots is far more unkempt and unpredictable than working within the academic sphere. Moreover, the official rewards are typically sparse.

As one example, I recall a colleague who dedicated a distinguished career to improving productivity on family farms. His work was, and still is, deeply respected. Yet not long after he retired, he wrote that the industry he had supported through his research was not sustainable.

I remember this story from time to time as I ponder the illusion I used to carry that universities were places where virtually any idea could be discussed, documented, or challenged. For this scholar, it was not until he was safely outside the academic sphere that certain of his truths could be told.

In this light, it seems worth remembering the extension model that truly differentiated land-grant research and education. Alas, in the extractive economy, extension educators have become an endangered species in many states.

The core premise of extension research is that scholars and farmers can learn together, blending pragmatic experiences from the farm with theory taught in academic settings. The scholar plays a convening role, engaging farmers in research projects that might be pursued for academic purposes but are located on farms. Farmers are invited to help frame the research, often lend their land for research plots, and help interpret the results. This model often results in solid research that enjoys more seamless implementation, since farmers know and care about the research, and understand how it applies to farms like theirs.

This turns out to be a remarkably effective process for coping with emerging issues, such as an unexpected outbreak of pests or disease that farmers might notice quickly, but could not analyze in depth without scholarly assistance. By the same token, scholars are co-learners, since most outbreaks are a surprise. Using theoretical knowledge to inform practical experience, this elevated practice in turn could create new theory that draws upon, and adds to, farmer wisdom, even while it improves the academic canon.

The best extension agents realize that their role is to serve as servant-leaders, a term Rich Pirog popularized during his tenure at the Leopold Center at Iowa State (Pirog & Bregendahl, 2012). Pirog nurtured regional food systems working groups that allowed citizens and academics to meet on relatively level playing fields. By removing the power imbalance between scholars and citizens, exceptionally searching work was produced. Strong connections were built among practitioners and academics. Sophisticated community practices resulted.

Similarly, in many states, counties make significant financial contributions to the operating costs of the extension program within their borders. Not only does this ensure a wide base of political support; it also makes the investments by the local community quite tangible.

This could be contrasted with a more extractive model, in which the university may espouse that it builds the capacity of the surrounding community, when in fact it interferes with processes that have been thriving quietly inside the community for decades. At times the institution claims ownership and dominion over ideas that were developed by community volunteers (consider corn), in order to ensure market success

for the institution. A classic example is the university that builds a research center in or near a low-income area, hoping to attract donors, but does little to actually engage residents other than as objects of research.

Under this extractive model, the view of the professionals often becomes so narrow that they assume that nearby residents are in need of training, primarily because what the college can offer is training.

From the privileged view of the campus the surrounding neighborhoods appear “deficient.” The assets of the community itself typically go unrecognized.

Funders, often with the best of intentions, may reinforce these extractive relationships because people who can be portrayed as “in need” look far more appealing as objects of philanthropy than if they are viewed as people with phenomenal unrecognized assets who want to build greater capacity. I once delivered a report to a foundation working in a low-income setting that documented that residents had formed 170 nonprofit organizations with links to nearly as many outside institutions. This information was suppressed by staff because it did not conform to the foundation’s view that the neighborhood was helpless without its assistance.

**From the privileged view of
the campus, the surrounding
neighborhoods appear
“deficient.” The assets of
the community itself
typically go unrecognized.**

For these reasons, people who want to study those who try to climb out of poverty get paid far better than those who are actually striving to climb. While both parties need money, only one is viewed as worthy of substantial resources.

The most honest of the experts — who typically work at the margins of the institutions themselves — know that the real wisdom is often held by those who dwell on the borders of a given system. Often these wise practitioners know the system under scrutiny far better than those who occupy the center. There, on the margins, you can often find these scholars and residents learning together.



References

- Meter, K. (2012). How do we grow new farmers? Learning from another American pastime. *Journal of Agriculture, Food Systems, and Community Development*, 2(2), 3–6.
<http://dx.doi.org/10.5304/jafscd.2012.022.015>
- Pirog, R., & Bregendahl, C. (2012). *Creating change in the food system: The role of regional food networks in Iowa*. Lansing, Michigan: Center for Regional Food Systems at Michigan State University. Retrieved from <http://bit.ly/ccfsreport>

Sustainable agriculture undergraduate degree programs: A land-grant university mission

Krista L. Jacobsen,^{a,*} Department of Horticulture, University of Kentucky

Kim L. Niewolny,^b Department of Agricultural and Extension Education, Virginia Tech

Michelle S. Schroeder-Moreno,^c Department of Crop Science, North Carolina State University

Mark Van Horn,^d Agricultural Sustainability Institute, University of California-Davis

Alison H. Harmon,^e Department of Health and Human Development, Montana State University

Yolanda H. Chen Fanslow,^f Department of Plant and Soil Science, University of Vermont

Mark A. Williams,^g Department of Horticulture, University of Kentucky

Damian Parr,^h Sustainable Agriculture Education Association

Submitted 6 December 2011 / Revised 17 February 2012 / Accepted 2 March 2012 / Published online 27 May 2012

Citation: Jacobsen, K. L., Niewolny, K. L., Schroeder-Moreno, M. S., Van Horn, M., Harmon, A. H., Chen Fanslow, Y. H., Williams, M. A., & Parr, D. (2012). Sustainable agriculture undergraduate degree programs: A land-grant university mission. *Journal of Agriculture, Food Systems, and Community Development*, 2(3), 13–26. <http://dx.doi.org/10.5304/jafscd.2012.023.004>

Copyright © 2012 by New Leaf Associates, Inc.

^{a,*} *Corresponding author:* Krista L. Jacobsen, N-310C
Agricultural Sciences North, University of Kentucky,
Lexington, KY 40546 USA; +1-859-257-3921;
krista.jacobsen@uky.edu

^b 282 Litton Reaves Hall, Department of Agricultural and
Extension Education, Virginia Tech, Blacksburg, VA 24061
USA; + 1-540-231-5784; niewolny@vt.edu

^c 2406 Williams Hall, Department of Crop Science, NC State
University, Raleigh, NC 27695 USA; +1-919-513-0085;
michelle_schroeder@ncsu.edu

^d Agricultural Sustainability Institute, 143 Robbins Hall,
University of California, Davis, CA 95616 USA; +1-530-752-
7645; mxvanhorn@ucdavis.edu

^e 201A Romney Gym; Montana State University; Bozeman,
MT 59717-3360; +1-406-994-6338; harmon@montana.edu

^f Jeffords Hall, 63 Carrigan Drive, Univ of Vermont,
Burlington, VT 05405 USA; +1-802-656-9828;
yolanda.chen@uvm.edu

^g N-322D Agricultural Sciences North, University of
Kentucky, Lexington, KY 40546 USA; +1-859-257-2638;
mark.williams@uky.edu

^h <http://sustainableaged.org/> ; dmparr@ucdavis.edu

Abstract

There has been considerable growth in the number of undergraduate degree programs in sustainable agriculture (SA) in universities and colleges across the country in the past 25 years. As a subset of this national trend, land-grant universities (LGUs) are emerging as catalysts in innovative SA program development, in part due to the LGU tripartite mission of education, extension, and research. This mission compels LGUs to develop undergraduate degree offerings to engage student, faculty, and community stakeholders who are increasingly interested in SA. In this article, which is an outcome of a gathering of faculty, staff and students from SA programs at LGUs at a workshop prior to the 4th

Disclosure: Krista Jacobsen, Kim Niewolny, Michelle Schroeder-Moreno, and Damian Parr currently serve on the steering council of the Sustainable Agriculture Education Association, which convened the meeting that inspired this paper. They do not receive any compensation for these roles and have no financial interest in the SAEA.

National Sustainable Agriculture Education Association Conference in August 2011, we discuss the justification for SA programming at LGUs, the emergence of SA major and minor degrees at 11 LGUs to date, the common successes and challenges of current SA programs, strategies for improving existing SA programming, and systematic approaches for expanding SA education impact across institutional lines. We also introduce several additional topic-based articles that resulted from workshop dialogue that appear in this issue of the *Journal of Agriculture, Food Systems, and Community Development*, including civic engagement efforts in SA education through community-university partnerships, a critical documentation of the implicit inclusion of values into SA education, and efforts to internationalize SA curriculum.

Keywords

experiential education, Higher Education Challenge Grant, interdisciplinary education, land-grant universities, sustainable agriculture education

Introduction

Over the past 25 years, there has been considerable growth of sustainable agriculture (SA) education programs in universities and colleges nationwide (United States Department of Agriculture [USDA], 2009). The growing numbers of SA students and educators is further demonstrated by the development of a new Sustainable Agriculture Education Association (SAEA). The SAEA emerged in 2006 in part to fulfill the need for an organization that focused specifically on supporting and sharing SA education curricula for both teachers and learners (SAEA, n.d.-a). The SAEA has produced four national biannual conferences, which are the sole national-level forum for faculty, staff, students, and community-based practitioners to connect on matters of teaching and learning in sustainable agriculture. Attendance has grown with each conference, with representation from educators, and both undergraduate and graduate students from SA programs at colleges and universities across the country. As a subset of this larger national trend, land-grant universities (LGUs) across the country are emerging as catalysts for developing innovative SA educational programs for

a variety of reasons. These include but are not limited to the unique triad mission of LGUs that focus on education, research and extension; growing student interest in sustainable agriculture and food systems; and new faculty and staff hires.

In an effort to bring programs at LGUs together for an extended, focused dialogue, a preconference workshop was held at the University of Kentucky in Lexington on August 3, 2011, in conjunction with the 4th National SAEA Conference. This full-day, facilitated workshop brought faculty and students together to discuss the “State of Sustainable Agriculture Education at Land-Grant Universities,” specifically focusing on identifying national needs in SA programming at LGUs and sharing the successes, challenges, and current program state and structure at participating institutions. Six universities were represented (Michigan State University, North Carolina State University, University of California–Davis, University of Kentucky, University of Missouri, and Virginia Tech), with one to three faculty members and several undergraduate students from each of the participating programs.

Workshop invitees were representatives of major and/or minor undergraduate degree programs in SA, as identified through the SAEA programs website (SAEA, n.d.-b) and the National Agriculture Library list of programs (USDA, 2009). This boundary of major and minor programs only (i.e., excluding concentrations, specializations, certificates, etc.) was delineated for the purposes of convening a cohesive cohort of programs that are structured administratively in similar ways and have been approved fully on the university level (see table 1). Many of the specific program names differ and therefore emphasize various components of SA education, such as agroecology, organic agriculture, and sustainable food systems. For the purpose of the workshop, and this paper, we collectively refer to them as sustainable agriculture (SA) programs because they share similar interdisciplinary, agriculture and food systems–based curricula that emphasize experiential teaching and learning approaches (Francis, Jordan, Porter, Breland, Lieblein, Salomonsson, . . . Langer, 2011; Francis, Lieblein, Helenius, Salomonsson, Olsen, Porter, 2001; Parr, Trexler, Khanna, & Battisti,

Table 1. Programmatic Information for the Sustainable Agriculture Degree Programs Included in this Work, with Key Supporting Resources Used To Create Curricula

Land Grant University	Program Name ²	Degree	Year Established	Student Farm?	New or Replace Existing Major?	External Funding Sources for Program Creation	Community Stakeholder Input into SA Program Process
Montana State University	Sustainable Food & Bioenergy Systems	B.S. Major	2009	Yes	New	HECG ^e	Advisory panel
North Carolina State University	Agroecology	Minor ³	2004	In development ^c	New	HECG ^e	Multilevel, multi-institution collaboration ^g
The Pennsylvania State University	Agroecology	B.S. Major	ca. 1997	No	Replace Existing	None	Stakeholder survey
University of California- Davis	Sustainable Agriculture & Food Systems	B.S. Major	2011	Yes	New	Foundation funds ^f	Delphi study; advisory panel
University of Florida	Organic & Sustainable Crop Production	Minor ^b	2006	No ^d	New	None	Informal interviews
University of Kentucky	Sustainable Agriculture	B.S. Major, Minor	2007	Yes	New	HECG ^e	Informal interviews
University of Maine	Sustainable Agriculture	B.S. Major	1988	Yes	New	None	Informal interviews
University of Missouri	Sustainable Agriculture	Minor ^b	2002	No	New	HECG ^e	Informal interviews
University of Vermont	Ecological Agriculture	B.S. Major, Minor	2004	Yes	New	None	Informal interviews
University of Wyoming	Agroecology	B.S. Major, Minor	1993	Yes	Replace Existing	None	Informal interviews
Virginia Tech	Civic Agriculture & Food Systems	Minor	2010	In development	New	HECG ^e	Community task force

Data from this table were populated from the National Agriculture Library database, the Sustainable Agriculture Education Association website (<http://www.sustainableag.org>), and program self-identification.

^a Additional program information may be found on the contributing programmatic websites:

Montana State University: <http://sfbs.montana.edu/>

North Carolina State University: <http://www.cropsci.ncsu.edu/agroecology/program.htm>

The Pennsylvania State University: <http://agroecology.psu.edu/index.cfm>

University of California-Davis: <http://ltras.ucdavis.edu/students/about-major>

University of Florida: <http://www.hos.ufl.edu/undergraduate-program/minors#Organic>

University of Kentucky: <http://www2.ca.uky.edu/sustainableag/>

University of Maine: <http://sag.umaine.edu/>

University of Missouri: <http://cafmr.missouri.edu/academics/sustainable-ag.php>

University of Vermont: <http://www.uvm.edu/~pss/?Page=pssdeptweb/eadeegree.htm>

University of Wyoming: <http://www.uwyo.edu/esm/undergraduate-programs/agroecology/>

Virginia Tech: <http://www.cals.vt.edu/students/undergraduate/minors/civic-ag.php>

^b The University of Florida also has major specializations under departmental or college-level umbrella degree programs.

^c Students also have access to facility dedicated to sustainable agriculture research and outreach.

^d Students have access to on-campus teaching gardens, although they are not considered a student farm.

^e HECG = USDA Higher Education Challenge Grant

^f Foundation funds were used to support program creation; HECG funds have been used for student recruitment.

^g Collaborators on program development include a number of researchers, educators and extension specialists from educational institutions across North Carolina (Schroeder, Creamer, Linker, Mueller, & Rzewnicki, 2006).

2007). The starting point for this set of related papers in this issue of the *Journal of Agriculture, Food Systems and Community Development* focusing on the topic of higher education and food systems is our workshop dialogue, with efforts made to increase the robustness of this dialogue through inclusion of input from our colleagues at LGUs who were not able to attend the workshop. We recognize this cohort is certainly not representative of all SA programming at LGUs, or necessarily representative of the diversity of programs at higher education institutions across the country. For example, we recognize that there are some SA-oriented programs at LGUs that are structurally similar to those outlined here and, for various institution-specific reasons, are characterized as “specializations,” “certificates,” etc. However, such terms are used in other ways at still other institutions, so we exclude these programs for the sake of consistency. Instead of casting a wider net, we chose to focus on this discreet cohort of programs to focus the dialogue and to better understand how the unique environment at LGUs both helps and hinders in creating degree offerings in SA, as well as to document our experiences in order to provide models and “lessons learned” for our colleagues at peer institutions and to encourage further development of SA programs at LGUs nationally. Further, we would be remiss to not recognize the foundational efforts of other institutions of higher education that have generously contributed to SA teaching and learning over the years (e.g., Appalachian State University, Berea College, College of the Atlantic, Evergreen State College, and University of California, Santa Cruz). Thus, our self-critical exploration and documentation aim to engender ongoing discussion within and among universities and colleges committed to SA programming.

In other articles in this volume, workshop participants and contributing authors discuss critical topics raised in the workshop dialogue, including efforts to civically engage the greater farming and food systems community in SA education efforts through sustained community-university partnerships (Niewolny, Grossman, Byker, Helms, Clark, Cotton, & Jacobsen, this issue), a critical documentation of the implicit inclusion of values into SA pedagogy (Galt, Clark,

Parr, this issue), and efforts to internationalize SA curriculum (Schroeder-Moreno, Clark, Byker, Zhao, this issue). In this introductory article, therefore, we discuss the justification for SA education programming at LGUs, the emergence of SA major and minor degrees to date, the common successes and challenges of current SA programs, and strategies for improving existing SA programming and expanding their impact.

The Role of the LGU System

The LGU system is a major contributor to publicly funded higher education because of its unique history of practical instruction to citizens of ordinary means (LaMay, 2001; Morrill Act, 1862; National Research Council [NRC], 1996). This orientation toward linking academics to real-world contexts and purposeful activities has direct links to John Dewey (1916) and other progressive educational philosophers who were engaged in the debates about educational reforms in nineteenth- and early twentieth-century America. Before the founding of the LGU in 1862, postsecondary education in the U.S. was primarily focused on teaching classics to the elite. For nearly a century after its founding, the LGU served the applied agricultural needs of students, integrating both the scientific theory and practice of agriculture, making the curricula both relevant and accessible to the working classes.

The dominant educational philosophy and curricula of the LGU system has changed dramatically since its initial inception, and a number of studies from the 1990s (Boyer Commission, 1998; Kellogg Commission on the Future of State and Land-Grant Universities, 1999; NRC, 1996) began questioning the LGUs’ performance in serving the needs of its mandated constituencies. These critiques called for transforming the status quo of LGU curricula and pedagogy, away from Ivory Tower, didactic teaching from the perspective of a single discipline, toward “innovative multidisciplinary and systems-based course materials and curricula” (NRC, 1996, p. 5). Ten years later the National Research Council report, “Transforming Agricultural Education for a Changing World” (2009), affirmed many of its earlier published concerns and recommendations, warning, “if

institutions of higher learning do not address the changes needed, their colleges and departments of agriculture may eventually become irrelevant” (p. 4). These recent calls for a more integrated and engagement-oriented LGU and agricultural curriculum are a revival from the last century, when scholars in LGUs were inventing how best to educate students of agriculture in progressive ways. Our contemporary challenge and opportunity are to learn from this rich history and provide our students with “real-world” experiences that reflect the complexities of agriculture and food systems that graduates will face in their future careers.

LGUs play a lead role in educating the nation’s future producers, agricultural scientists, policy-makers, educators, and food system leaders. However, the obstacles to teaching and developing SA education programs at LGUs are significant (Altieri & Francis, 1992). To date, SA programs are still few in comparison to traditional production-agriculture programs at LGUs. SA education grapples with the necessary shift in emphasis from teaching how to *maximize* production to teaching how to *optimize* for a suite of environmental, social, and economic objectives (Francis et al., 2003).

Despite the challenges, faculty from a number of LGUs have been leaders in developing SA education programs and collaborating across traditional departmental and disciplinary lines to create programs that seek to integrate the ecological, social, and economic factors in agricultural systems (table 1). These faculty have been collaborating and exchanging ideas broadly within and among institutions, but there have been few opportunities for faculty to share in the progress, successes, and challenges in these programs that are specifically operating within the LGU structure (for a notable exception, see Ngouajio, Delate, Carey, Azarenko, Ferguson, & Sciarappa, 2006).

The Emergence of SA Programs at LGUs

Although there are a growing number of SA programs at LGUs in various states of curricular development, the emergence of each program is unique at each institution; that is, it reflects a function of the broader educational and political climate at each college of agriculture and university,

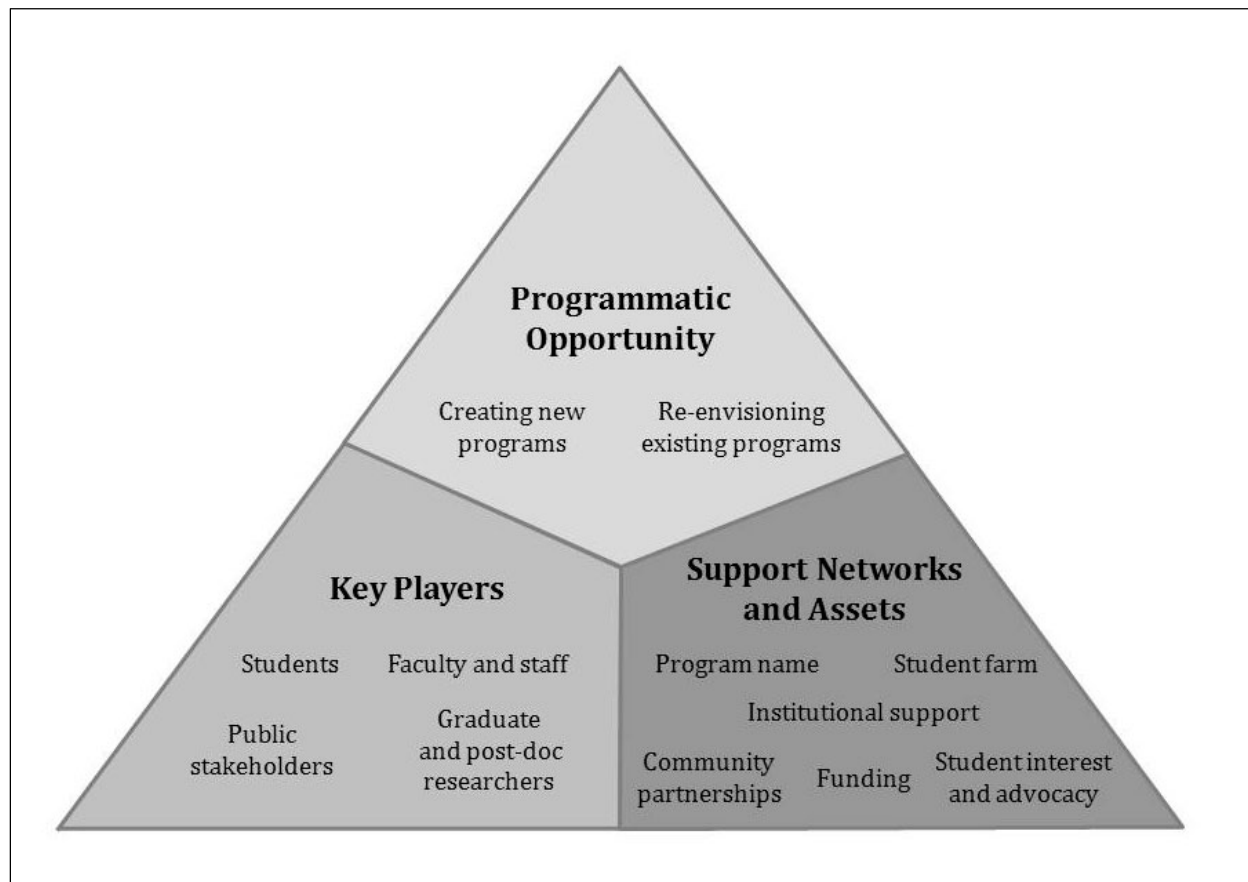
as well as the personalities and local resources available at inter- and intra-departmental levels. Within our cohort of major and minor undergraduate programs in SA at LGUs, the unique stories and the relatively small number of SA programs makes developing typologies of the creation and current structure of degree programs difficult. However, through shared dialogue at the workshop, subsequent follow-up with faculty from additional programs, and a comprehensive literature review, a common pool of initial conditions and available resources were identified that have been integral to the creation of SA programs at LGUs.

The components in figure 1 represent the array of conditions and resources that were important in creating SA programs at the LGUs represented in this work. At each institution, the necessary components to program creation were (1) a window of opportunity for the creation of an SA program, (2) key players who provided the thrust of the work in program creation, and (3) a set of resources that key players utilized to provide support and legitimacy for SA program creation efforts. The specific nature of these components varies by institution, and figure 1 represents a diversity of examples of these components that were important in SA program creation at the LGUs represented in this work. We view this suite of conditions and resources as a programmatic “primordial soup” that represents necessary components of successful program creation when the opportunity arises for a new SA program to be developed. By documenting and discussing the general role of the conditions and resources that have been important in SA undergraduate curricula across the country, we aim to provide a general framework that captures the “creation stories” of all of our programs. Within this general framework, we offer some particular considerations for program creation within the LGU structure, to serve as both documentation and a guide for future program development at our peer institutions.

SA Program Development Opportunities

The SA programs represented in this work were initiated as a result of two types of programmatic

Figure 1. Conceptual Model of the Conditions and Resources Necessary for Successful Sustainable Agriculture Undergraduate Degree Program Development at the Land Grant Universities in this Work



development opportunities: (1) to re-envision an existing major or minor and replace the traditional program with an SA program(s), or (2) to create entirely new programming (figure 1).

Colleges of agriculture have been facing declining undergraduate enrollment, particularly in the plant and soil sciences, for a number of years (Hansen, Ward, Khosla, Fenwick, & Moore, 2007). Declining enrollment in traditional majors and feedback from stakeholders (e.g., current students, alumni, farmers, and industry representatives) provided sufficient rationale for the revision of existing programming to incorporate more emphasis on holistic, interdisciplinary subject matter. Thus existing programs with declining enrollment were collapsed and the curriculum retooled to incorporate new curricular goals and replaced with

an SA-oriented degree program (e.g., an “Agronomy” degree is replaced with “Agroecology.”). SA programs that were designed to replace or augment existing undergraduate degree programs include the Agroecology majors at Penn State (Karsten & Risius, 2004) and the University of Wyoming (S. Herbert, personal communication, October 25, 2011).

The majority of the SA programs represented in table 1 were designed as new curricula to be offered in addition to traditional undergraduate degree programs rooted in both the natural and social sciences. These new programs were designed to draw from current courses from multiple departments and units, including agricultural economics, agricultural sciences, agronomy, animal sciences, crop and soil sciences, entomology, horticulture, human nutrition, plant pathology, and

rural sociology, as indicated by preconference participants. Existing courses in these areas are augmented with novel core SA courses and experiential learning opportunities unique to the SA program.

Building Support Networks and Assets for Creating SA Programs at LGUs

Irrespective of the motivations for their creation and inclusion of existing discipline-specific coursework, SA curricula are distinctly different from traditional discipline-oriented agricultural curricula, in that they emphasize holistic analysis of food and agricultural systems, experiential learning, engagement with community practitioners, and an explicit integration of the social and natural sciences (Francis, 2009). Although SA programs are often created as “alternatives” to traditional degree programs, successful creation of SA programs requires support of key traditional constituencies due to the unique nature of the LGU mission and academic structure. In this section, we discuss a suite of support networks and assets that were essential to the development of the programs included in this work, presented in figure 1. Support for the development of new programs comes in the forms of physical capital, such as funding and land for student farms, as well as social capital, such as that created from building support for new programs from within the land-grant constituency.

Community-university partnerships are integral to the success of LGUs due both to the nature of SA curricula as well as the outreach mission of the LGU. As we discuss in an article in this issue on civic engagement (Niewolny, Grossman, Byker, Helms, Clark, Cotton, & Jacobsen, 2012), partnerships with local organizations, farmers and other stakeholders greatly enrich SA curricula, as community partners perform as educators and mentors in student development. In the SA programs reviewed in this work, community advisory panels have been integral to the creation of some SA programs. Community partners have contributed to program development in several ways, including by partnering on federal competitive grants to fund program creation (e.g.,

Virginia Tech (S. Clark, personal communication, August 3, 2011)), by providing formal input on curriculum development in the form of key community members serving on advisory panels (e.g., Montana State), by participating in surveys (e.g., Penn State and UC–Davis (Karsten & Risius, 2004 ; Parr et al., 2007)), and by providing informal feedback through conversations with farmers and industry (e.g., University of Kentucky and University of Florida (R. Darnell, personal communication, October 13, 2011)). As programs develop and students matriculate, community partners become key players in hosting students for service learning activities, internships, and as future employers.

Colleges of agriculture at LGUs may be the only arm of the university with a direct responsibility to engage the public (NRC, 2009, p. 20). Workshop participants noted a sense of duty to cultivate positive relationships with key community partners, such as local farmers, industry, and state agencies. In particular, public stakeholder input has been used to structure the nature and scale of student farms so as not to compete with local farmers, to contribute work sites and skills for internship requirements, and to contribute to the process of selecting a program name.

Program identity has been recognized as a central asset of SA programs nationally that generates morale and a sense of community (Ngouajio et al., 2006). In the workshop discussion, participants noted that selection of names served to both divide and include various groups in the creation of the programs. For example, the term “sustainable” could invoke the implication that previous programming was “unsustainable” to public stakeholders and colleagues within the LGU. To avoid potential conflict, programs have chosen names that incorporate a natural science-oriented perspective such as “agroecology,” or that specifically draw boundaries on curriculum, such as “organic” programs that are rooted in the USDA National Organic Program with a delineated set of practices. In other cases, the inclusion of “food systems” or “civic agriculture” in a program title illustrated a significant social discourse underlying the creation of the programs and explicitly values the contributions of community practitioners and

social scientists (e.g., Virginia Tech's Civic Agriculture and Food System Minor, the University of California–Davis's Sustainable Agriculture & Food Systems Major, and Montana State University's Sustainable Food and Bioenergy Systems Major). The process of creating an identity has the potential to be either divisive or community-building within the LGU itself and the external public constituency. Ultimately the name of SA programs creates a unique branding for programs that sets SA programs apart from the traditional, existing programs.

Student interest in **curricula focused on experiential learning** in alternative agriculture systems has been a hallmark in creating and perpetuating SA programs throughout the country. Student interest in developing SA programming is most visible in extensive student involvement in the development of *student farms*. Students have been integral in developing student farms and gardens at LGUs across the country, including Maine (Sarrantonio, 2011), California (Parr & Van Horn, 2006; Van Horn, 2011), Michigan (Biernbaum, Jgouajio, & Thorp, 2006), Florida (X. Zhao, personal communication, October 13, 2011), and North Carolina (M. Schroeder-Moreno, personal communication, November 30, 2011). As discussed by Parr and Trexler (2011), student farms also create a sense of place in programs, an important factor in student retention in SA programs. In fact, the creation of student farms has consistently predated SA programs, with student farm students acting as key initiators of SA curriculum at their respective campuses (Parr & Trexler, 2011; Sayre, 2011). Inspired by their experiences on student farms, students have also been direct advocates for creating SA programs at LGUs and have been formally represented on committees working on program creation (Van Horn, 2011; Liebman, 1997).

Program funding. In general, programs that were re-envisionings of existing programming were created without the use of external competitive funds, but rather from a mandate within departments or the college of agriculture. Most of the programs created as new degrees to augment traditional agriculture programming were developed with the support of external, competitive

funding. These include regional U.S. Department of Agriculture (USDA) Sustainable Agriculture Research and Education (SARE) program funds, foundation funding, and most commonly, USDA Higher Education Challenge Grants (see references to HECG in table 1). Further, of the 11 SA programs represented in this work, eight were created to exist alongside traditional programming, and faculty actively sought external funding to support curriculum development efforts. Of these eight, five received HECG funding for activities directly related to creating SA programs. From this cohort of SA undergraduate majors and minor degree programs at LGUs, HECGs appear to be an effective and widespread funding mechanism for these efforts.

Institutional support. SA programs reviewed here are largely defined as interdisciplinary, inter-departmental programs, requiring support from diverse discipline-oriented departments, including agricultural economics, agronomy, agricultural education, animal science, human nutrition, horticulture, and rural sociology, to name a few. Workshop participants stated that the support from various departments within the colleges of agriculture varied, with some interdepartmental partnerships happening from the outset, to others that have resisted supporting ongoing SA programs for various reasons. When creating alternative programming, faculty can receive institutional legitimacy for their curriculum development work by tying to traditional reward structures in the LGU system. For example, faculty have who have taken on the development of new curriculum and coursework have in some cases begun with exploratory research, needs assessments, or Delphi surveys of experts and stakeholders, and have disseminated case studies of their courses, program components or novel teaching methodologies through peer-reviewed manuscripts (Biernbaum, Jgouajio, & Thorp, 2006; Delate, 2006; Falk, Pao, & Cramer, 2005; Ferguson, Lamb, & Swisher, 2006; Harmon, 2002; Jordan, Andow, & Mercer, 2005; Karsten & Risius, 2004; Markhart, 2006; Parr & Van Horn, 2006; Parr et al., 2007; Perillo, Johnson-Maynard, Ater-Kranov, Harmon, Mavrolas, & Koenig, 2010; Schroeder, Creamer, Linker, Mueller, & Rzewnicki, 2006; Trexler, Parr, & Khanna, 2006;

Wharton & Harmon, 2009). Similarly, externally funded grants are nearly always positive additions to curriculum vitae, and provide the tenure and promotion review committee with evidence that a faculty member is doing work that is respected by the profession. Ultimately, the programs reviewed in this work were able to garner sufficient internal institutional support for their creation. In some cases, easy partnerships were created between departments, and curriculum development efforts were supported at the college administrative level. However, building constituency and institutional support within colleges of agriculture and some stakeholder groups continues to be a challenge for some SA programs, as discussed below.

Current Challenges and Opportunities

This article focuses on many successes of SA programs at land grant universities, but there remain a number of challenges for both existing and developing programs. While challenges can be impediments to progress, they can also help us understand how to improve our efforts and identify new and better ways forward. A few of the common challenges and related opportunities associated with SA programs at LGUs are described here.

Philosophical and political challenges. The study of sustainable agriculture, by its nature, includes examining both the positive and negative environmental, social, and economic impacts of agriculture as a system of production, distribution, and consumption. These examinations often acknowledge and explore the environmental and social challenges associated with conventional agricultural systems. These kinds of examinations have been resisted by individuals and organizations both inside and outside some LGUs for various reasons, thus limiting the development of SA academic programs at some institutions. In addition, a number of LGUs have struggled to maintain viable numbers of students enrolled in their production-based agricultural programs (Hansen et al., 2007). The development of new SA programs is seen by some as a potential solution to this problem, but others see it as competing with and undermining more traditional curricula. How-

ever, LGUs have the opportunity to create programs and courses that integrate students with both traditional and nontraditional backgrounds and interests and thus help develop within all students a shared understanding and appreciation of different approaches to agriculture. We posit that development of future SA programs at our peer institutions may be expedited by assessing the institutional landscape for key elements present in successfully established SA programs. Research investigating the root causes for why these elements may be lacking would contribute to the literature on systemic barriers to SA program creation at LGUs, and bring these issues to the forefront of the dialogue on SA education at LGUs.

Administrative support for interdisciplinary interdepartmental programs. An understanding of SA requires both disciplinary and interdisciplinary studies, drawing from many faculty in diverse natural and social science disciplines. While the departmental homes of SA programs range widely at different LGUs, all SA programs must depend on courses and teaching efforts that cross multiple departments. Faculty teaching assignments and related resource allocations are typically controlled at the departmental level and, within an institution, different departments have different programmatic priorities and may exhibit differing levels of support for a SA program. These factors contribute to the complexity of coordinating SA teaching and advising assignments across departments. Strong college and/or university administrative support and communication among department leaders are needed to support existing faculty members' teaching efforts across departments. New faculty hires with specific SA teaching responsibility may be required to ensure the successful development and longevity of SA programs.

Adequate facilities and resources to support experiential learning. Understanding SA requires interdisciplinary and integrative studies of systems, which in turn require experiential and field-based learning opportunities such as laboratories, field trips, and internships. Such learning modalities are resource-intensive and may involve the use of special facilities, such as a student farm

(Parr & Van Horn, 2006). Many SA programs are using innovative educational strategies to engage students in experiential learning activities through student farms, intensive internship programs (as discussed by Schroeder-Moreno, Clark, Byker, & Zhao, in this issue), or other means; these in turn necessitate adequate funding and personnel to be successful.

Expanding faculty teaching expertise beyond their traditional disciplinary training.

Traditionally, new faculty at LGUs are likely hired from graduate programs focused on research and teach courses within their discipline (e.g., a soil scientist would be expected to teach Introduction to Soils). Faculty teaching SA programs frequently must learn and/or synthesize new academic material in order to offer a quality learning experience for students. Teaching upper division courses, including capstone courses, where materials do not necessarily exist or practical projects dominate the syllabus, pose a new challenge. The instructor may not have any particular expertise to apply, and therefore must exercise a new set of teaching skills that might include facilitation or providing guidance for professional development.

Balancing breadth and depth, and instructing within a new discipline. The relative newness of SA education as a discipline together with the lack of shared instructional materials make it challenging for instructors, especially for the many junior faculty teaching and directing in these programs. While communication about shared resources and pedagogy are developing with the SAEA, this newness, combined with the wide breadth of the SA as a discipline, create challenges in teaching students about sustainable agriculture, such as determining the limits of what will be included in a course or program. Adequately teaching the depth of the multidisciplinary topics within SA poses a difficult challenge for a single instructor, yet this presents opportunities for cross-disciplinary teaching efforts through guest lecturers or cross-listed courses. Students can benefit greatly from diverse perspectives and expertise when SA courses and programs engage faculty from various disciplines.

Risks in instruction and course development. The experiential and interdisciplinary nature

of SA programs may require instructors from traditional research backgrounds to stretch beyond their research and teaching training. Learning new content and instructional skills and researching pedagogical approaches create an exciting opportunity for the instructor, but require time and effort. This should be both emphasized and detailed in one's dossier, with special attention given to the novel approaches used in coursework. Risk-taking is inherent in sustainable agriculture and food systems teaching, and its results are reflected in students' course and instructor evaluation scores. If an experimental aspect of a course does not go well, student reviews may be lower, and vice versa. Since scores are often used as evidence in the tenure and promotion review, faculty should take this into account and be reflective when composing a self-evaluation and teaching philosophy for the dossier. It is often helpful to incorporate additional forms of formative and summative evaluation in new courses that use novel teaching methods, as well as peer evaluation of instruction and content, to both better inform a self-evaluation and provide additional written evidence for professional evaluation.

Balancing faculty efforts in SA instruction with other expectations. It was a timely moment at the workshop when conference attendees were asked "who here is tenured?" and only three of the 10 tenure-track faculty members raised their hands. The enthusiasm and passion of pre-tenured faculty can be significant sources of energy for the development of SA programs, but they can be challenged considerably in balancing developing new interdisciplinary programs and expectations for tenure. New faculty should become well acquainted with both documented and undocumented expectations, work hard to develop collegial relationships with faculty within and across departments, including those outside of sustainable agriculture and with administrators, and understand what is recognized as academic scholarship at their individual institution (Boyer Commission, 1998; Finkelstein, 2001). While pre-tenured faculty leading these SA programs face challenges that are considerable and diverse, many opportunities exist for interdisciplinary collaborations in research, instruction, and outreach within

and across departments and institutions. Moreover, pre-tenured faculty can learn from and be supported through these collaborations by informal and formal mentoring of tenured faculty. It may be a worthy activity for the Sustainable Agriculture Education Association to establishing a cadre of mentoring faculty who have been tenured and promoted successfully and who offer to provide support for junior faculty.

Conclusion and Recommendations for Future LGU Program Development

Within the national landscape of SA programs in higher education, LGUs have a unique role and obligation to stakeholders and students to provide SA educational opportunities. The programs reflected in this work emerged out of a combination of the right timing for development of SA curriculum, supporting social capital and financial resources, and having a suite of passionate players — faculty, staff, and students — who were vested in creating programs that are alternatives to traditional agricultural undergraduate degree programs and meet a changing agricultural paradigm. We have outlined the genesis of these programs, our shared challenges, and offered opportunities that might be used to overcome them. Specifically, we would like to offer the following recommendations to our colleagues at other LGUs considering creating SA programs.

Recommendations for faculty and staff

- Pursue research in the context of your sustainable agriculture teaching program. Find ways to authentically apply the concept of “engaged scholarship” by integrating work on course development into your teaching efforts within the traditional evaluation and reward structure of the LGU.
- An increasing number of agriculture venues are encouraging of service-learning, experiential, and interdisciplinary teaching approaches and applications. Seek professional development opportunities to learn “best practices” at venues relevant to your institution and program.

- Proactively reach out to community members, especially farmers, and seek their input on structure and content of courses and curricula. Creating an advisory panel or other mechanism can help to formalize the feedback structure and be useful for grant-writing efforts.
- Students are often your best advocates for program generation and success. Steer youthful enthusiasm to learn about sustainable agriculture concepts and practices by way of critical reflection and engaged dialogue with peers.
- Be careful to balance time with SA program development and related service and outreach with your other faculty obligations. Seek mentorship with tenured faculty and supportive administrators to ease the work-load tension as well as to share teaching and programmatic responsibilities with contributing faculty members.

Recommendations for students

- Advocate for program development with your professors and university leadership. Understand the interests, needs, and concerns of faculty and administrators and strive to develop approaches that simultaneously further their agendas and yours. Develop and nurture good working relationships with faculty and administrator allies.
- Pursue coursework and research opportunities within the area of SA. Opportunities for both efforts are emerging and could have great impact on your academic and professional growth.
- Student farms and school gardens are often the center piece of SA programs. Seize opportunities to build these farms and gardens as student-driven initiatives.
- SA students are often perceived as part of a cohort of students who are “different” from other students in traditional majors in colleges of agriculture. Work to build the SA student community by participating in student clubs and informal activities with your peers. A vibrant student community aids in student retention and helps recruit new students into

nascent programs, especially those with small numbers of students.

The content and conclusions of this paper are a function of the discreet cohort of SA undergraduate degree programs (majors and minors only), which was by design a narrow subset of SA programming in higher education. Even within the LGU system, there are a number of other programmatic structures, including concentrations, certificate programs, individual courses, and research opportunities in SA. Some of the experiences and challenges outlined in this work are applicable to the general SA education experience; however, the structure and mission of the LGU is unique in the university system. As we advance our collective dialogue on the current state and future of sustainable agriculture education, we look forward particularly to feedback from colleagues, particularly at private universities and teaching colleges, to discuss the similarities and differences in their experiences.

Acknowledgements

We would like to acknowledge the faculty and staff from LGUs who were not able to attend the SAEA preconference workshop that this article emerged from, but who contributed programmatic information and kind support for this effort. These include Dr. Stephen Herbert at the University of Wyoming, Dr. Rebecca Darnell at the University of Florida, Dr. Heather Karsten at Pennsylvania State University, and Drs. Eric Gallandt and Marianne Sarrantonio at the University of Maine. We also are grateful for the support of our colleges and universities who have granted us the opportunity to collaborate. The comments of anonymous reviewers strengthened this manuscript, and we thank them for their efforts. Lastly, we thank our colleagues within the Sustainable Agriculture Education Association for supporting this project from start to finish.

References

Altieri, M. A., & Francis, C. A. (1992). Incorporating agroecology into the conventional agricultural curriculum. *American Journal of Alternative*

Agriculture, 7, 89–93.

<http://dx.doi.org/10.1017/S0889189300004525>

Biernbaum, J. A., Jgouajio, M., & Thorp, L. (2006).

Development of a year-round student organic farm and organic farming curriculum at Michigan State University. *HortTechnology*, 16(3), 432–436.

Boyer Commission. (1998). Reinventing undergraduate education: A blueprint for America's research universities. Carnegie Foundation for the Advancement of Learning. Retrieved from <http://naples.cc.sunysb.edu/Pres/boyer.nsf/>

Delate, K. (2006). Incorporating organic and agroecological approaches into the university curricula: The Iowa State University graduate program in sustainable agriculture. *HortTechnology*, 16(3), 445–448.

Dewey, J. (1916). *Democracy and education*. New York: MacMillan Company.

Falk C. L., Pao P., & Cramer, C. S. (2005). Teaching diversified organic crop production using the community supported agriculture farming system model. *Journal of Natural Resources and Life Sciences Education*, 34, 8–12.

Ferguson, J. J., Lamb, E. & Swisher, M. (2006). Developing an interdisciplinary organic and sustainable agriculture curriculum at the University of Florida, *HortTechnology*, 16, 436–438.

Finkelstein, M. (2001). Toward a unified view of scholarship: Eliminating tension between tradition and engaged work. *Journal of Higher Education Outreach and Engagement*, 6, 35–44.

Francis, C. A. (2009). Education in organic farming and food systems. In C. A. Francis (Ed.), *Organic farming: The ecological system* (pp. 283–300). Madison, Wisconsin: Agronomy Society of America.

Francis, C. A., Jordan, N., Porter, P., Breland, T. A., Lieblein, G., Salomonsson, L.,...Langer, V. (2011). Innovative education in agroecology: Experiential learning for a sustainable agriculture. *Critical Reviews in Plant Sciences*, 30(1), 226–237.

<http://dx.doi.org/10.1080/07352689.2011.554497>

Francis, C. A., Leiblein, G., Helenius, J., Salomonsson, L., Olsen, H., & Porter, J. (2001). Challenges in designing ecological agriculture education: A Nordic perspective on change. *American Journal of Alternative Agriculture*, 16(2), 89–95.

<http://dx.doi.org/10.1017/S0889189300008985>

- Francis, C. A., Lieblein, G., Gliessman, S., Breland, T. A., Creamer, N., Harwood, R.,... Poincelot, R. (2003). Agroecology: The ecology of food systems. *Journal of Sustainable Agriculture*, 22(3), 99–117.
http://dx.doi.org/10.1300/J064v22n03_10
- Galt, R. E., Clark, S. F., & Parr, D. (2012). Engaging values in sustainable agriculture and food systems education: Toward an explicitly values-based pedagogical approach. *Journal of Agriculture, Food Systems and Community Development*. Advance online publication.
<http://dx.doi.org/10.5304/jafscd.2012.023.006>
- Hansen, N., Ward, S., Khosla, R., Fenwick, J., & Moore, B. (2007). What does undergraduate enrollment in soil and crop sciences mean for the future of agronomy? *Agronomy Journal*, 99, 1169–1174.
<http://dx.doi.org/10.2134/agronj2006.0318>
- Harmon, A. H. (2002). Teaching sustainability using the food system as a model. In W. L. Filho (Ed.), *Teaching sustainability at universities: Towards curriculum greening* (pp. 239–249), Frankfurt: Peter Lang Publishing Group.
- Jordan, N. R., Andow, D. A., & Mercer, K. L. (2005). New concepts in agroecology: A service-learning course. *Journal of Natural Resources and Life Sciences Education*, 34, 83–89.
- Karsten, H. D., & Risius, M. L. (2004). Development of an interdisciplinary Agroecology major with input from surveys of students, graduates, and employers. *NACTA Journal*, 48, 58–64.
- Kellogg Commission on the Future of State and Land-Grant Universities. (1999). *Returning to our roots: The engaged institution*. Battle Creek, Michigan: W. K. Kellogg Foundation
- LaMay, C. L. (2001). Justin Smith Morrill and the politics and legacy of the land-grant college acts. In L. K. Grossman & N. N. Minow (Eds.), *A digital gift to the nation: Fulfilling the promise of the digital and Internet age* (pp. 73–95). New York: The Century Foundation Press.
- Liebman, M. (1997). The University of Maine sustainable agriculture program: Factors in success. *Consortium News* (Consortium for Sustainable Agriculture Research and Education), 14, 5–6.
- Markhart, A. H. III. (2006). Organic educational opportunities at the University of Minnesota: The role of a student-run organic farm. *HortTechnology*, 16(3), 443–445.
- Morrill Act. (1862). Thirty-Seventh U.S. Congress, Session II, Chapter 130. Retrieved from <http://www.memory.loc.gov/cgi-bin/ampage?collId=llsl&fileName=012/llsl012.db&rec-Num=534>
- National Research Council [NRC]. (1996). *Colleges of agriculture at the Land Grant Universities: Public service and public policy*. Committee on the Future of the Colleges of Agriculture in the Land Grant University System. Washington, D.C.: National Academy Press.
- National Research Council [NRC]. (2009). *Transforming agricultural education for a changing world*. Washington, D.C.: The National Academies Press.
- Ngouajio, K., Delate, E., Carey, A. N., Azarenko, J., Ferguson, J., & Sciarappa, W. J. (2006). Curriculum development for organic horticulture: Introduction. *HortTechnology*, 16(3), 414–417.
- Niewolny, K. L., Grossman, J. M., Byker, C. J., Helms, J. L., Clark, S. F., Cotton, J. A., & Jacobsen, K. L. (2012). Sustainable agriculture education and civic engagement: The significance of community-university partnerships in the new agricultural paradigm. *Journal of Agriculture, Food Systems and Community Development*. Advance online publication.
<http://dx.doi.org/10.5304/jafscd.2012.023.005>
- Parr, D., & Van Horn, M. (2006). Development of organic and sustainable agricultural education at the University of California, Davis: A closer look at practice and theory. *HortTechnology*, 16(3), 426–431.
- Parr, D., Trexler, C. J., Khanna, N. R., & Battisti, B. T. (2007). Designing sustainable agriculture education: Academics' suggestions for an undergraduate curriculum at a land-grant university. *Agriculture and Human Values*, 24, 523–533.
<http://dx.doi.org/10.1007/s10460-007-9084-y>
- Parr, D. and Trexler, C.J. (2011). Students' experiential learning and use of student farms in sustainable agriculture education. *Journal of Natural Resources and Life Science Education*. 40,172–180.
- Perillo, C. A., Johnson-Maynard, J., Ater-Kranov, A., Harmon, A. H., Mavrolas, P., & Koenig, K. (2010, October 31–November 1). *Developing a regional learning community around teaching sustainable food and agricultural systems at the university level*. Poster abstract

- presented at the annual meetings of the American Society of Agronomy, Long Beach, California.
- Sarrantonio, M. (2011). University of Maine: Majoring in sustainable ag. In L. Sayre & S. Clark (Eds.), *Fields of learning: The student farm movement in North America* (pp. 173–191). Lexington, Kentucky: The University Press of Kentucky.
- Sayre, L. (2011). Introduction: The student farm movement in context. In L. Sayre & S. Clark (Eds.), *Fields of learning: The student farm movement in North America* (pp. 1–30). Lexington, Kentucky: The University Press of Kentucky.
- Schroeder-Moreno, M. S., Clark, S. F., Byker, C. J., & Zhao, X. (2012). Internationalizing sustainable agriculture education. *Journal of Agriculture, Food Systems and Community Development*. <http://dx.doi.org/10.5304/jafscd.2012.023.007>
- Schroeder, M. S., Creamer, N. G., Linker, H. M., Mueller, J. P. & Rzewnicki, P. (2006). Interdisciplinary and multilevel approach to organic and sustainable agriculture education at North Carolina State University. *HorTechnology*, 16(3), 418–426.
- Sustainable Agriculture Education Association [SAEA]. (n.d.-a). *Promoting the teaching and learning of sustainable agriculture*. Retrieved from <http://www.sustainableaged.org/About/tabid/56/Default.aspx>
- Sustainable Agriculture Education Association [SAEA]. (n.d.-b). *Academic programs*. Retrieved from <http://sustainableaged.org/Resources/AcademicPrograms/tabid/86/Default.aspx>
- Trexler, C. J., Parr, D. M., & Khanna, N. (2006). A Delphi study of agricultural practitioners' opinions: necessary experiences for inclusion in an undergraduate sustainable agricultural major. *Journal of Agricultural Education*, 47, 15–25. <http://dx.doi.org/10.5032/jae.2006.04015>
- United States Department of Agriculture [USDA]. (2009). *National Agricultural Library educational and training opportunities in sustainable agriculture* (19th ed.). USDA-ARS, Beltsville, Maryland. Retrieved from <http://www.nal.usda.gov/afsic/pubs/edtr/EDTR2009.shtml>
- Van Horn, M. (2011). Moving from the margins to the center. In L. Sayre & S. Clark (Eds.), *Fields of learning: The student farm movement in North America* (pp. 129–148). Lexington, Kentucky: The University Press of Kentucky.
- Wharton, C., & Harmon A. H. (2009). University engagement through local food enterprise: Community supported agriculture on campus. *Journal of Hunger and Environmental Nutrition*, 4, 112–128. <http://dx.doi.org/10.1080/19320240902915235>

Sustainable agriculture education and civic engagement: The significance of community-university partnerships in the new agricultural paradigm

Kim L. Niewolny,^{a,*} Virginia Tech, Department of Agricultural and Extension Education

Julie M. Grossman,^b Department of Soil Science, North Carolina State University

Carmen J. Byker,^c Montana State University, Department of Health & Human Development

Jennifer L. Helms,^d Virginia Tech, Department of Agricultural and Extension Education

Susan F. Clark,^e Virginia Tech, Department of Human Nutrition, Foods and Exercise

Julie A. Cotton,^f Sustainable Agriculture & Food System Specialization, Michigan State University

Krista L. Jacobsen,^g Department of Horticulture, University of Kentucky

Submitted 5 December 2011 / Revised 20 February and 18 March 2012 / Accepted 29 March 2012 / Published online 23 May 2012

Citation: Niewolny, K. L., Grossman, J. M., Byker, C. J., Helms, J. L., Clark, S. F., Cotton, J. A., & Jacobsen, K. L. (2012). Sustainable agriculture education and civic engagement: The significance of community-university partnerships in the new agricultural paradigm. *Journal of Agriculture, Food Systems, and Community Development*, 2(3), 27–42.
<http://dx.doi.org/10.5304/jafscd.2012.023.005>

Copyright © 2012 by New Leaf Associates, Inc.

^{a,*} *Corresponding author:* 282 Litton Reaves Hall, Department of Agricultural and Extension Education, Virginia Tech, Blacksburg, VA 24061 USA; +1-540-231-5784; niewolny@vt.edu

^b 4234 Williams Hall, Department of Soil Science, North Carolina State University, Raleigh, NC 27695-7619 USA; +1-919-513-1041; julie_grossman@ncsu.edu

^c 222 Romney Gym, Department of Health & Human Development, Montana State University, Bozeman, MT 59717 USA; +1-406-994-1952; carmen.byker@montana.edu

^d 2270 Litton Reaves Hall, Department of Agricultural and Extension Education, Virginia Tech, Blacksburg, VA 24061 USA; +1-540-231-6836; jenniferhelms@vt.edu

^e 202 Wallace Annex, Virginia Tech, Blacksburg, VA 24061 USA; +1-540-231-8768; sfclark@vt.edu

^f A274 Plant & Soil Science Building, Sustainable Agriculture & Food System Specialization, Michigan State University, East Lansing, MI 48824 USA; +1-517-355-0271; cottonj@msu.edu

^g N-310C Agricultural Sciences North, University of Kentucky, Lexington, KY 40546 USA; +1-859-257-3921; krista.jacobsen@uky.edu

Abstract

Universities and colleges across the United States are making innovative strides in higher education programming to catalyze a more sustainable era of agriculture. This is clearly exemplified through the formation of community-university partnerships as critical illustrations of civic engagement (CE) for sustainable agriculture (SA) education. This paper explores the praxis of CE for SA education by focusing on the ways in which five land-grant universities (LGUs) with undergraduate programs in SA have developed and put into practice community-university partnerships. Drawing upon these programs and supportive literature, this article specifically attempts to describe the role and significance of CE for SA education, emerging community-university partnership models and their implications for prompting food and agriculture sustainability, and student learning and program assessment outcomes. We also reveal the many challenges and opportunities encountered by stakeholders involved in the creation and continu-

ation of these programs and their subsequent coursework. Conclusions offer “real world” recommendations for other faculty, staff, student, and community stakeholders to implement and generate action-oriented scholarship for and with communities as a viable thread of SA education.

Keywords

civic engagement, community-university partnerships, land-grant universities, sustainable agriculture education

Introduction

According to the National Academies of Science (National Research Council of the National Academies [NRC]; Division on Earth and Life Studies; Board on Agriculture and Natural Resources Board on Life Sciences, 2009), institutions of higher education should provide more agricultural education opportunities that take students “beyond the institution” (p. 6) so that our students may have direct access to civically engaged and real world learning experiences. These opportunities may include agriculture-orientated internships, off-campus service-learning opportunities, cooperative learning experiences with the agriculture industry, student-led seminars, and self-directed practicums. The emergence of sustainable agriculture (SA) education¹ is distinctively contemporaneous within this discourse through the resurgence of community-university partnerships. As our agriculture and food system is confronting environmental, economic, and social constraints, land-grant university (LGU) partnerships with communities are specifically mobilizing faculty, students, and community members toward a more sustainable era of agriculture by sharing resources and knowledge (Molnar, Ritz, Heller, & Solecki, 2010).

While civic engagement (CE) varies across university landscapes, we focus our attention on

CE opportunities through the LGU lens with special emphasis on undergraduate education. The focus on applied sciences makes LGUs a natural fit for integrating CE with SA education programs.² LGUs have a long history of outreach and education in which faculty, staff, and students work with community stakeholders to enhance agriculture knowledge and practice. Central to mutually beneficial engagement for communities and universities is “respecting roles, perspectives, needs, and sources of knowledge. It also means sharing information, knowledge, and wisdom, collaboratively defining problems, and jointly finding meaningful solutions to those problems” (Peters, Jordan, Adamek, & Alter, 2005, p. 462). Including key examples of CE during LGU strategic plans can prioritize the needs of the community in education, research, and outreach agendas, resulting in the actualization of applied research with local knowledge and experience (NRC, 2009).

As we explore the emergence and significance of community-university partnerships in SA education through the lens of CE, we attempt to clarify some pertinent questions. First, what do we mean by CE for SA education? How are community-university partnerships an illustration of CE for SA education, in theory and in practice? How are SA major and minor programs at LGUs incorporating community-university partnerships into their curricula? Drawing upon Melville, Berg, and Blank (2006), what community-based learning strategies (e.g., agro-environmental, place-based, and service-based) underpin these opportunities? How do we assess learning in community-based settings? And finally, what are the challenges and opportunities for this kind of CE at LGUs? The following is an attempt to answer these questions.

Sustainable Agriculture Education Association Preconference Workshop

In August 2011, participants from several LGUs with majors or minors explicitly focusing on

¹ Following the Sustainable Agriculture Education Association (SAEA), we define sustainable agriculture as “food and agricultural systems that are environmentally sound, economically viable, socially responsible, non-exploitative, humane, and that serve as a foundation for future generations” (SAEA, n.d., “Promoting the teaching and learning”).

² We acknowledge that program names may differ (e.g., sustainable agriculture, agroecology, organic agriculture, and food systems). For clarity and simplicity, we use the term sustainable agriculture (SA) education to collectively refer to all of these systems-based programs.

sustainable agriculture and food systems discussed the state of sustainable agriculture programs at the participating institutions. The preconference workshop took place prior to the 4th National Sustainable Agriculture Education Association (SAEA) Conference in Lexington, Kentucky. This full-day forum was designed as a unique opportunity for participants to develop regional and national-level collaborations at peer institutions to enhance their programming in areas of key national needs. As part of this facilitated workshop, faculty and student participants shared successes and challenges of meaningful engagement opportunities with community partners in their programming and instructional efforts. Our SA program experiences were among those shared at this workshop (see the introductory paper, “Sustainable Agriculture Undergraduate Degree Programs: A Land-Grant University Mission” by Jacobsen, Niewolny, Schroeder-Moreno, Van Horn, Harmon, Chen Fanslow, Williams, and Parr in this issue for further details). The facilitated workshop was organized as a series of large- and small-group discussions and breakout sessions. These sessions were a mix of facilitator-led discussions and world café discussion sessions. Large-group discussions were digitally recorded, transcribed, and reviewed for common themes pertaining to our SA education experiences. World café discussion sessions were hand recorded and reviewed for similar and divergent themes as they emerged from the discussion.

While many topics emerged through workshop dialogue, the mutually constitutive nature of CE in our SA programs emerged as one of several major themes repeatedly discussed throughout the day. Four subsequent themes further informed our SA education programming knowledge and experiences as they pertained to the role of CE: community-university partnerships as a key example of CE in SA education; empirical models of community-university partnerships in our programs; community-based learning strategies supporting our SA education programs; and the purpose or utility of these community-university partnerships. Within each of these themes, insightful situations of struggle and achievement with our students, departments, colleges, and community groups were at the heart of our accounts. In this

paper, we systematically draw upon a range of programmatic and scholarly literature to further frame these themes, and the evolution of our five LGU programs (Michigan State University, Montana State University, North Carolina State University, University of Kentucky, and Virginia Tech) with special emphasis on *service learning*, *farm study*, and *self-directed practicums* as empirical models of community-university partnerships in SA curricula. We purposely choose to focus on these models of community-university partnerships embedded in our sustainability curricula given their prominence in our programs. To that end, we reveal our SA program structures, educational content, learning audiences, and formative assessment methods and outcomes that help inform how these models are put into practice.

It should be noted that although somewhat common in practice, very little has been written on the relationship between CE and SA programs in higher education. Even less is written about the actual ways in which institutions of higher education are providing specific CE opportunities through SA programs. The focus on the role of CE in SA programs at LGUs was also intentional. As stated in the Introduction article in this issue, LGUs are rapidly providing new space for SA program development — despite the many challenges experienced along the way. Our experiences with SA education are also embedded within the LGU system. The authors acknowledge, however, that other universities and colleges (e.g., liberal art colleges) contribute to the SA education discourse in many important ways. As far as the authors are aware, this manuscript is the first to provide a comprehensive framework for CE that is specific to SA programs across several LGUs. Our aim is therefore to present a succinct case for CE in SA programs at LGUs so that our experiences may provide footing for others, both in and outside the LGU system. At a minimum, we have provided a starting point for this emerging discussion. We begin by exploring the role of civic agriculture as a promising framework to understand the role of CE in SA education.

Civic Agriculture as a Framework for CE in SA Education

Agriculture and food systems have experienced several transformations over the last century. Guided by a growing (post)industrialized discourse, technological changes such as mechanization, synthetic inputs, and biotechnology have revolutionized agriculture. Increased specialization and transnational economic arrangements from production to consumption have further transformed agrofood system practices. In response to this globalized trajectory, a new agricultural paradigm has emerged that focuses on the “embedding of local agricultural and food production in the community” (Lyson, 2004, p. 62). This concept of “civic agriculture,” as coined by Lyson (2004), supports strategies and enterprises for the reconfiguration of food production, distribution, and consumption in North America. Representative initiatives such as community supported agriculture (CSA), farmers’ markets, community gardens, and farm-to-institution arrangements are growing rapidly by way of public participation and local support. For Hinrichs (2007), this civic agriculture paradigm sets the stage for new forms of knowledge, networks, and standards of agricultural practice through the dual aims of civic revitalization and food system transformation. A civically engaged agriculture is built through the foundations of social embeddedness, reciprocity, and trust (Tolbert, Irwin, Lyson, & Nucci, 2002). In other words, a civically engaged foundation of agriculture may contribute to creating a democratic environment for higher levels of social wellness, capacity building, and community engagement.

The concept of civic agriculture has been applied in various contexts as a development paradigm. According to Thomson, Maretzki, and Harmon (2007) and Wright (2006), civic agricultural principles are undoubtedly applicable to educational frameworks.³ We further propose that civic agriculture may provide the conceptual groundwork for developing SA education that aims

to strengthen students’ understanding of the connections among food, agriculture, and the community. Community-university learning opportunities, for example, allow students and community members to join together in democratically structured ways that help reveal complex issues of food system hegemony, social justice, and food security (Colasanti, Reau, & Wright, 2009). These community-based learning experiences also provide group capacity-building and collaborative leadership development for enhanced understanding and action (Wright, 2006). Others draw upon such formats as community forums and study circles to create dialogue about and envision a more sustainable agriculture and food system (Poincelot, Francis, & Bird, 2006).

What makes these approaches unique for universities and colleges of agriculture is their commitment to serving the needs of students *and* community stakeholders. According to Hassanein (2003), democratic participation and CE are the means and ends for pragmatic learning to catalyze agriculture and food system transformation. By exposing students to community-learning opportunities in SA programs, we are in fact teaching them *how* to (re)structure the food system by way of eliciting the values, knowledge, and experiences of those involved in the food system (Colasanti et al., 2009). In other words, we are asking students to become directly involved in this change by learning with and within the community. In this light, we are creating the space for continued problem-solving and public dialogue that may actually inform a more sustainable food system.

Community-University Partnerships Guided by the Land-Grant Mission

Engagement is an essential component to the twenty-first-century LGU mission. It is connecting students, faculty, and community together in a mutually beneficial learning process and providing “an opportunity for all — faculty, staff, students, and public — to learn together in seeking solutions to real problems” (Byrne, 2000, p. 17). For Peters, Jordan, Adamek, and Alter (2005), the role of LGU faculty is to engage with the community with democratic and civic responsibility to problem-solve from a plethora of perspectives; here

³ Not all programs mentioned here refer to civic agriculture as a pedagogical framework for SA education. Instead, the authors draw upon civic agriculture as a suitable theoretical foundation for discussion and application.

community actors bring “distinct but complementary motivations, interests, and goals to the table, as well as somewhat different understandings of the public issues that are at stake” (p. 38).

While the LGU has a clear responsibility to contribute to the community, student engagement has not been a primary way that universities have acted or served in communities. More extractive relationships, such as traditional student internships or faculty-guided research, have provided student learning opportunities; however, these opportunities have not necessarily reciprocated benefits to the community. Instead, community-university partnerships, as primary examples of civic engagement, should build relationships that benefit the public good, therein serving the LGU mission and increasing community capacity simultaneously (Kellogg Commission on the Future of State Universities and Land-Grant Colleges, 1999).

Despite their mission, universities and communities frequently develop an antagonistic relationship (also known as the *town and gown divide*) for reasons such as campus separation from town life (McGirr, Kull, & Enns, 2003), or perception of the community as merely a “client” for research (Bruning, McGrew, & Cooper, 2006, p. 126). The apparent town and gown divide prompted the Kellogg Commission on the Future of State Universities and Land-Grant Colleges (1999) to petition higher education institutions for better collaboration with the public in order to problem-solve local and global issues in an increasingly complex society. Civically engaged activities can help integrate university activities with the local community. Public scholarship, the act of uniting scholarship and/or the arts with constituencies to form a partnership that addresses practical, localized issues, is also an avenue to engage campus and community with the intent for civic progress (Peters et al., 2005). SA is an appropriate common ground for universities and communities to problem-solve given prevalent concerns about the current food system’s environmental impacts (Foley et al., 2005) and inability to provide immediate or future food security (Godfray et al., 2010).

Models of Community-University Partnerships in SA Undergraduate Curriculum

Having characterized the attributes, scope, and scale of CE for SA education, we now focus on three specific community-university partnership models taking place at five LGUs that illustrate what this looks like in practice: *service-learning*, *farm study*, and *self-directed practicums*. Table 1 in the appendix summarizes these models from our programmatic perspectives. Drawing upon Melaville, Berg, and Blank (2006), we focus on the description of SA education, community-university learning strategies, and the utility of the models that the five LGU programs have applied within SA coursework. While we focus on these five LGUs, it is important to note that the community-university partnerships in SA education vary from university to university. LGUs across the country are also assessing learning in similar yet distinctly different ways with regards to their CE opportunities. Other colleges and universities are uniquely contributing to the formation and refinement of community-university partnerships in SA education. It is important to note, however, that time and space limitations only allows for specific attention to be given to these five LGU programs.

Service-Learning. Service-learning is perhaps the most common form of CE through SA education. Each of our LGU SA programs demonstrate some form of service-learning. Focus group themes largely emphasized the way in which community-university partnerships are the driving force behind these learning opportunities for most of our programs. Service-learning can be defined as a teaching and learning strategy that integrates meaningful community service with instruction and reflection to enrich the learning experience, teach civic responsibility, and strengthen communities (Butin, 2010; Connors & Seifert, 2005). The three characteristics of service-learning have been specifically defined as “learning and academic rigor, reflective thinking, and civic responsibility” (Duncan & Kopperud, 2008, p. 7).

At our universities, partnerships between students and community organizations have emerged with the dual goals of improving student learning through civic empowerment, structured

reflection on course content, and actively meeting the needs of the local community (Ash, Clayton, & Atkinson, 2005). At the same time, such projects have also been shown to increase awareness of issues of social justice and societal inequities (Einfeld & Collins, 2008; Eyler & Giles, 1999; Hughes, Welsh, Mayer, Bolay, & Southard, 2009). Preparing students to participate in society, being civically and politically engaged, and being socially responsible are desired educational outcomes of both service-learning and volunteerism (Strand, Cutforth, Stoecker, Marullo, & Donohue, 2003). However, when compared to volunteerism, we argue that service-learning delves in deeper, asking students to analyze and synthesize their experiences in a formal manner.

From workshop discussions, we learned that the SA programs at our five LGUs similarly recognize how student engagement with community can encompass various time frames, from simple immersion activities consisting of only a few hours of community contact time, to a fully integrated, semester-length course with multiple contact points and the establishment of deeper relationships with community members. Examples of service-learning integrated into SA education curriculum from our institutions include one-day field trips to a community garden (e.g., North Carolina State University), one-week spring break service experience in an international location (e.g., Virginia Tech), and a semester-long project assisting local farmers via on-farm service visits (e.g., Michigan State University). These examples are further characterized as service-learning through a range of purposeful, critical-reflection writing assignments (e.g., reflection assignments using e-Portfolios at Virginia Tech) that allow students to move beyond simple volunteerism toward a more civically engaged practice with community partners. This reflection-based pedagogy is central to engendering authentic service-learning (Duncan & Kopperud, 2008; Eyler & Giles, 1999).

Farm Study. In recent years, multiday farm study and tour courses have been developed with the intention of engaging students with agricultural course content and presenting them with the multi-dimensional challenges of agricultural production. Workshop discussants specifically noted farm study

opportunities both within and outside of their home institutions (e.g., Iowa State University, Washington State University, University of Minnesota, University of Nebraska, University of Kentucky, and Michigan State University). Such courses often last from one week to 10 days, and include precourse readings and interviews with farm families focusing on production, economic, and social challenges. Particular emphasis is placed on student evaluation of interview responses, data analysis in small teams, and presentation of synthesized results in both oral and written forms. Such tours have been found to increase both student motivation for learning and retention of agricultural course content (Wiedenhoeft, Simmons, Salvador, McAndrews, Francis, King, & Hole, 2003). Community partners are not as influential on curricula development or the reflection process using this learning strategy.

As an example from our set of five LGUs, the University of Kentucky incorporates a week-long farm study tour into the capstone course (SAG 490) of its SA undergraduate major. Throughout the first weeks of the semester-long course, students work with the instructor to create learning objectives and identify the types of agricultural enterprises they would like exposure to before completing the program. Working collaboratively, SAG students, faculty, and staff assemble a travel itinerary and spend the week interviewing farmers and reflecting on their experiences collectively over meals and travel times. Students then incorporate knowledge gained from the study tour into a final project focused on either planning for their future farm or building capacity for local organizations working on community food issues. The projects are presented as written reports and class presentations.

In another example outside our group of LGUs, faculty representing diverse disciplines from multiple institutions lead a study tour in which students review available methods and develop and utilize their own protocols for analyzing farm sites that compose “the assemblage of agroecosystems within the four state region of southwestern Minnesota, northwestern Iowa, southeastern South Dakota, and northeastern Nebraska” (DeHaan, Porter, Francis, & Wiedenhoeft, 2011, p. 1). In this

community-learning course, student teams pursue experiential learning and then prepare a document summarizing their farm analysis. Students then present their work in both oral workshops and a written final report. A highlight of this course is the completion of what is called a Learner Document, which provides an opportunity to reflect on the process by which students are learning during the week. This allows for formalizing the process as both an experience and an opportunity for learning that takes place as a result of the experience (Francis et al., 2011).

Self-Directed Engagement Practicum. Our focus group sessions further illustrated that self-directed practicums were also often used as a community-engagement learning strategy. What composed the practicums, however, differed across our five LGUs programs. In discussion, it was agreed that the primary objective of a self-directed engagement practicum is for students and community partners to create a “useable” end product. In our programs, students are encouraged to exercise their creativity and learned knowledge, and to use a broad skill set to address an SA or food system topic that would be otherwise be difficult to encapsulate in teacher-centered coursework. These students often bring awareness of local agricultural and food system issues or of a topic or discipline that is of interest to the community. Interdisciplinary courses and programs can pose complications for instructors, as student learners’ needs and goals vary. However, well-crafted practicum experiences that provide strong support for self-directed projects can provide appropriate learning opportunities for each student.

In student-led projects within our LGUs, faculty assist students by providing a process and tools for students to carry out their own research or action-based community project. After determining a general topic and community partner, the student or student groups use provided templates to define their interests, roles, responsibilities, and expected outcomes with their community partners. By negotiating their relationships and end products with their community partner, they learn the constraints of the particular setting and environment. Instructors receive a formal project proposal, adapted appropriately to each practicum. Instruc-

tors then aid students in locating additional resources needed to complete their work or negotiate their relationship with the community partner as needed.

Examples from Michigan State University’s capstone course in Sustainable Agriculture and Food Systems include a documentary about dairy farmers who transitioned from confined to grazing operations that is utilized by outreach and extension, and a prototype composting program linking local food retail and service businesses with a local urban farm. Virginia Tech’s Civic Agriculture and Food System (CAFS) capstone projects are structured similarly; examples of coursework include a movable campus demonstration garden, a school garden education program, and a Photovoice anthology of a campus farm and garden. Through these and similar learning experiences, students are provided the opportunity to accomplish a tangible food system goal, gain professional and personal skills, and to give community partners assistance that is of real and immediate value.

Student Learning Through SA Curricula

Our LGU program experiences provide a unique opportunity to place agriculture students in communities where they can learn (1) personal, (2) academic, and (3) professional skills (Grossman, Patel, & Drinkwater, 2010; Jordan, Andow, & Mercer, 2005; Motavalli, Patton, & Miles, 2007). First, in some cases, according to Grossman, Patel, and Drinkwater (2010), civically engaged learning experiences may help students learn to personally and professionally interact with populations different from themselves and become aware of socioeconomic issues faced by disadvantaged populations. Such experience may provide students an advantage when seeking employment following graduation, for example, with new kinds of agricultural organizations requiring interaction with ethnically, economically, and culturally different populations from themselves. Perhaps more importantly, these experiences may also provide the necessary foundation for critical thinking and reflection about governing power structures (e.g., race, gender, class ideologies in the food system)—enabling opportunities for social action and change

as part of a tradition of emancipatory education (Brookfield, 2005; Hart, 1990).

Second, we argue that CE can serve to develop critical academic skills such as problem-solving and leadership. SA CE is particularly well-suited to engender these aims by way of linking classroom and field-based activities that place students in direct contact with professional organizations and farming activities such as field management (Parr, Trexler, Khanna, & Battisti, 2007). Although our SA programs have been successful in providing professional development opportunities, we admit that the learning experience can be complex. Students often negotiate their time and commitments with those of their community partner, which can be challenging for everyone involved. As students are exposed to the “messiness” of the real world through their activities, however, we suggest that they learn lessons related to persistence, resource identification, and flexibility as they work toward accomplishing community-identified goals, often as a team (e.g., the CAFS capstone project at Virginia Tech).

Third, students may also be empowered to take an active role as citizens in their community and become agents of social change. Part of developing a sense a community occurs when individuals feel that they are members of a group (McMillan & Chavis, 1986). Through CE, a “sense of place” is developed (DeLind, 2002, p. 222). Furthermore, CE frames SA in a way that places democratic participation at the focus of place-based agriculture initiatives (Lyson, 2004). By promoting a sense of place and democratic principles through CE in civic agriculture, we promote the development of citizens who are members contributing to a particular place. Critical scholars such as Dewey (1897) and Freire (1970) have identified education as a means for social progress. While applying knowledge, students gain an understanding of value systems and how to change and strengthen them (Byrne, 2000). For example, one study showed that undergraduates participating in CE wanted to promote diversity and influence social structures (Astin & Sax, 1998). While our

programs illustrate several student learning outcomes, these social action outcomes have not yet been recorded. We now focus on *how* student learning is currently assessed within our SA education programs.

Assessing Student Learning and Programmatic Outcomes

Through the development of our programs, it is clear that tools to evaluate student-learning outcomes from CE activities are not well documented. Although mixed-methods are used, qualitative experience is difficult to quantify (Bringle & Hatcher, 2009). To that end, each of our programs uses some form of reflective writing or verbal processing as part of a student learning assessment. For example, reflective writings and presentations are regarded as highly effective tools for students to critically compare their value system to their experience in order to facilitate deep learning (Connors & Seifer, 2005). Such writings often ask students to define specific things they have learned, at what point in the experience they learned it, and what they will do with the knowledge in other facets of their life (Ash et al., 2005), in written form, oral form, or both. Qualitative focus groups and interviews held before and after the community-engaged experience can also help inform instructors about preconceptions that a student may have prior to an activity, and how that activity changed these perceptions (i.e., Virginia Tech CAFS minor). If such qualitative assessments are transcribed for content evaluation (Strauss, 1987), quotes can be extracted from these conversations and lend strength to any quantitative data collected, along with the generation of prominent themes across the learner population. Pre- and post surveys using Likert scales are often used to collect such quantitative data, comparing student self-assessments of particular learning objectives to the degree they felt increases in knowledge in particular areas. Often a triangulation is recommended, with at least two or more of these methods used in combination to draw a clear picture of student learning resulting from often complex engaged experiences.

Table 2. Assessment Methods and Outcomes

Assessment Methods of Student Learning	Student Learning Outcomes
<ul style="list-style-type: none"> ■ Student and community members interviews ■ Postcourse surveys and/or evaluations ■ Fieldwork reflective journal analysis ■ Student focus groups ■ Class fieldwork activities that integrate community partner ■ Written community action project proposal development ■ Capstone community action project ■ Self, peer, faculty, and community evaluative feedback 	<ul style="list-style-type: none"> ■ Leadership development ■ Critical thinking analysis, problem-solving, adaptive skills ■ Teaching and articulation skills ■ Interacting with diverse audiences ■ Networking ■ Effective multidimensional communication skills ■ Community project implementation ■ Personal and professional growth ■ Increased metacognition and civic engagement

We have drawn upon a variety of these methods to conduct assessments, many of which are formative. Given the young age of these programs, summative evaluations are still months and years away. However, for the purpose of reporting our current state of programming, we have compiled basic measures of assessment and outputs across our five programs. Table 2 illustrates our compiled assessment methods and outputs.⁴

Challenges and Opportunities at Land-Grant Institutions

During the SAEA preconference workshop in August 2011, participants shared their successes and challenges to meaningful engagement of community partners in their programming and instructional efforts. CE was widely acknowledged by all programs present as beneficial and integral to student learning and programmatic missions. However, the dialogue revealed common challenges to initiating, maintaining, assessing, and sustaining these relationships in the long term.

CE efforts are resource-intensive and require investment on the part of the community partner and the academic institution. Workshop participants noted the time and effort needed to cultivate relationships with community partners, be it through dialogue, planning and participating in service activities, or reciprocating efforts when

community partners request academic expertise. Some workshop participants expressed that although their institutions may be morally supportive of the efforts, and even enjoy positive publicity and improved community relations due to SA-oriented CE activities, formal institutional support for these efforts is lacking. In the experience of workshop participants, CE efforts are often minimally funded and lack formal reward in traditional faculty evaluation structures. Further, there is opportunity cost within this structure for time spent cultivating community relationships that could otherwise be spent on efforts that receive merit (e.g., manuscript and grant writing, research activities, etc.).

We learned that building more integrated, positive community relationships take time, creativity, and commitment from both the educational institution and community partner. Considering the constrained choices of the community partner, be it economic, political, biophysical, social, or from any other source, is essential in providing a service of value. Instructors are implicitly or explicitly asking our community partners for time, training, or accommodation, which has a real cost to them or their organization. This lack of understanding of the resources required of community partners to host activities and experiences can potentially overtax the relationship and saturate the partner with students and requests for involvement (e.g., volunteer events, interns, tours, etc.). While the benefits may exceed these costs, understanding how engagement affects the community partner is important in tending to this relationship. Most

⁴ Assessment methods used were drawn from Grossman, Patel, & Drinkwater, 2010; Grossman, Sherard, Prohn, Bradley, Goodell, & Andrew, in press; Huba & Freed, 2000; Walvoord, 2004.

organizations have finite resources and care must be taken to design experiences that do not overburden the community partner. Aiming to have a mutually beneficial long-term relationship requires that the services students provide be worthwhile, and that the engagement remains appropriate to the changing needs of the community. Likewise, sharing these considerations with students prepares them by providing context for the experience; this can lead to more successful engagement efforts.

Similarly, we learned that community partners are not traditionally rewarded for their contributions as sources of knowledge and agents of change in communities, but rather as recipients of service. It is important to acknowledge community partners' time and expertise. Examples of such acknowledgement from our programs include honoraria for farm tours and speaking events, contribution of resources (e.g. farm supplies, money, expertise) to service-learning projects, or praising the community partner's work at public events or in media.

We also put forward that there are many opportunities to better equip students to work in communities more effectively. For example, some faculty in this case have designed precourse training to help prepare students for working with diverse audiences and offering basic skill-building in teaching and outreach realms (e.g., Smith & Grossman, 2011). Such training often takes place in structured sessions prior to engagement with the community and provides a forum for learning about community partner organization and goals through guest lectures. In other instances, training manuals have served this purpose. A training manual outlines specific expectations about student conduct, community partner roles, and faculty responsibilities. A guide that details modes of communication, avenues for actualizing the project, and assessment tools can help relieve anxieties about properly managing a project, representing the university and community in a positive manner, and, ultimately, ensuring sustainability of a community-university partnership because of good relations.

In addition to a common lack of widespread institutional support and funding for CE activities, SAEA workshop participants noted that instruc-

tors incorporating CE activities into their coursework have not typically received formal training in constructing activities and assessing student learning. More often instructors have been classically trained along traditional disciplinary lines such as soil science, agronomy or ecology; teaching SA curricula is often just a portion of their teaching activities. Community engagement efforts in their programs are motivated by an inherent valuation of community partners as sources of information and "real world" application. Thus, many of the workshop participants were learning to cultivate community partnerships through independent research on pedagogy and assessment, or informal networks and resource exchanges with peers.

Conclusion and Recommendations

By drawing upon programmatic and scholarly literature, and our lived experiences in developing civically engaged SA curricula, we have illustrated how a portion of higher education is moving toward a civically engaged future in relation to education for and about SA and food systems. LGUs have a responsibility to contribute to the community. Until recently student engagement in SA education was not a primary way that universities acted or served in communities. In response, we argue that the foundations of civic agriculture can be applied to SA programming to increase public dialogue, problem-solving capacities, and social action. We also argue that community-university partnerships are primary examples of CE in SA education. To that end, we drew upon various bodies of literature to frame the way our LGUs have created and sustained three specific models of community-university partnerships: service-learning, farm study, and self-directed practicums. Table 1 in the appendix summarizes these models. Our institutions do not use these models in isolation; instead, we draw upon elements of each model across our programs to effectively inform our students' experiences. Here we described how *farm study* opportunities have been shown to promote critical thinking while connecting student-centered topics in SA. The *self-directed practicum* example has been established as a place-based learning strategy where stakeholders work to discover capacities to mobilize assets for

community improvement. *Service-learning* is shown to connect community service to academic studies with reflection activities integrated into the curricula. The utility of this model addresses community needs and confers significant benefits to community partners.

We also focused on student learning outcomes and assessment measures, including but not limited to leadership development, critical thinking analysis, problem-solving, cultural awareness, communication skills, personal and professional growth, and increased metacognition through real-world application of SA skills and knowledge. Finally, we shared the ways in which these SA programs have not only been successfully created, but discuss the pitfalls that have occurred along the way. Of critical importance here is the need for open dialogue with stakeholders about programmatic assumptions. For example, concerns over administrator support for engagement efforts are a driver for ongoing dialogue about programmatic sustainability.

In building upon these ideas, we conclude with the following recommendations. While not exhaustive, these suggestions serve as a model for establishing and sustaining CE in SA programs within higher education institutions.

Recommendations for community practitioners:

- Reach out to university faculty who might provide content-area expertise and resources to mutually problem-solve.
- Proactively communicate your needs and expectations to university partners.
- Be honest about volunteer capacity, time limitations, and resource constraints.
- Be prepared to both teach and learn content knowledge and skills.

Recommendations for faculty:

- Incorporate community-based learning strategies into coursework requirements such as service learning, case studies, farm tours, or self-directed practicums. Create an avenue for reflection in CE approaches.
- Communicate clear expectations for the roles of all involved: students, community partners, and faculty members.

- Develop a standard protocol for university-community interactions, including a training manual for students and an acknowledgement structure for community partners.
- Help students learn about themselves and what they are learning by creating opportunities for personal reflection through journals or reflection-oriented assignments.

Recommendations for students:

- Understand that community partners are often juggling multiple projects and may rely on volunteers for a significant portion of their labor.
- Be open and flexible with scheduling and tasks whenever possible. Follow through when you make a commitment to an organization or farmer.
- Follow established protocol for CE activities and realize that you are a representative of the university.
- Actively link hands-on experiences with course concepts by making connections between field activities and related coursework and engaging in dialogue with peers, faculty, and community partners.

Acknowledgements

We would like to give generous thanks to our students, faculty colleagues, and community partners who contribute to the programs at the Michigan State University, Montana State University, North Carolina State University, University of Kentucky, and Virginia Tech. We are also grateful for our friends and supporters of the Sustainable Agriculture Education Association.

Appendix

Table 1. Categorization of CE for SA Education

Models of Community-University Partnerships for SA Education	Description of SA Education	Community-Based Learning Strategies Supporting SA Education ^a	Community-University Utility	Exemplar University Program ^b
Farm Study	Experiential learning activities on working farms with focus on exploring SA production practices (i.e., hands-on learning in student and university farm settings).	“Agro-environmental” That is, learning that uses agriculture and life science settings to build upon student interest and experience	Recognition and application of SA knowledge using experiential, hands-on methods.	MSU NCSU UK
Self-Directed Practicum	Stakeholders work to discover capacities to mobilize assets for community improvement (e.g., internship on a farm; co-directed asset-based community food system planning).	“Place-based” That is, student engagement is directed toward specific community needs and interests; community members serve as resources and partners in every aspect of teaching and learning.	Community partners can both set the SA agenda and evaluate work; they serve as respected partners and contributors, and cogenerate SA knowledge.	MSU MoSU NCSU UK VT
Service-Learning	Connecting community service to academic studies with integrated reflection activities (e.g., spring break service experience; semester-long service projects assisting farmers, community gardens, food banks, and community kitchens).	“Service-based” That is, service activity meets actual needs of the community partner identified by students and community partners. Learning is integrated with in-class work and student reflection.	Addresses community needs and confers significant benefits to community partner setting; students learn to critically evaluate their experience through reflection.	MSU MoSU NCSU UK VT

^a Descriptions adapted from Melaville, Berg, & Blank (2006)

^b University program abbreviations: Michigan State University (MSU), Sustainable Agriculture and Food Systems (B.S. & B.A. specialization); Montana State University (MoSU), Sustainable Food Systems Program (B.S. major); North Carolina State University (NCSU), Plant & Soil Sciences major with an Agroecology B.S. concentration; University of Kentucky (UK), Sustainable Agriculture (SAG) Program (B.S. major and minor); Virginia Tech (VT), Civic Agriculture and Food Systems (CAFS) (B.S. minor).

References

- Ash, S. L., Clayton, P., & Atkinson, M. (2005). Integrating reflection and assessment to capture and improve student learning. *Michigan Journal of Community Service Learning*, 11(2), 45–59.
- Astin, A. W., & Sax, L. J. (1998). How undergraduates are affected by service participation. *The Journal of College Student Development*, 39(3), 251–263.
- Bringle, R., & Hatcher, J. (2009). Innovative practices in service-learning and curricular engagement. *New Directions for Higher Education*, 147(Fall), 37–46.
<http://dx.doi.org/10.1002/he.356>
- Brookfield, S. (2005). *The power of critical theory: Liberating adult learning and teaching*. San Francisco, CA: Jossey-Bass.
- Bruning, S. D., McGrew, S., & Cooper, M. (2006). Town-gown relationships: Exploring university-community engagement from the perspective of community members. *Public Relations Review*, 32(2), 125–130.
<http://dx.doi.org/10.1016/j.pubrev.2006.02.005>
- Butin, D. W. (2010). *Service-learning in theory and practice*. New York: Palgrave Macmillan.
<http://dx.doi.org/10.1057/9780230106154>
- Byrne, J. V. (2000). Engagement: A defining characteristic of the university of tomorrow. *Journal of Higher Education Outreach and Engagement*, 6(1), 13–21.
- Colasanti, K., Wright, W., & Reau, B. (2009). Extension, the land-grant mission, and civic agriculture: Cultivating change. *Journal of Extension*, 47(4). Retrieved from
<http://www.joe.org/joe/2009august/a1.php>
- Connors, K., & Seifer, S. D. (2005). Reflection in higher education service-learning. Retrieved from Learn and Serve America's National Service-Learning Clearinghouse website:
http://www.servicelearning.org/instant_info/factsheets/he_facts/he_reflection
- DeHaan, R., Porter, P., Francis, C., & Wiedenhoef, M. (2011). *Agroecosystems analysis field course* (Unpublished course syllabus). Dordt College, University of Minnesota, University of Nebraska, and Iowa State University.
- DeLind, L. B. (2002). Place, work, and civic agriculture: Common fields for cultivation. *Agriculture and Human Values*, 19(3), 217–224.
<http://dx.doi.org/10.1023/A:1019994728252>
- Dewey, J. (1897). My pedagogic creed. *The School Journal*, 54(3), 77–80.
- Duncan, D., & Kopperud, J. (2008). *Service-learning companion*. Boston, Massachusetts: Houghton Mifflin Company.
- Einfeld, A., & Collins, D. (2008). The relationships between service-learning, social justice, multicultural competence, and civic engagement. *Journal of College Student Development*, 49(2), 95–109.
<http://dx.doi.org/10.1353/csd.2008.0017>
- Eyler, J., & Giles, D. (1999). *Where's the learning in service-learning?* San Francisco, California: Jossey-Bass.
- Foley, J. A., DeFries, R., Asner, G. P., Barford, C., Bonan, G., Carpenter, S. R., ... Snyder, P. K. (2005). Global consequences of land use. *Science*, 309(5734), 570–574.
<http://dx.doi.org/10.1126/science.1111772>
- Francis, C. A., Jordan, N., Porter, P., Breland, T. A., Lieblein, G., Salomonsson, L., Langer, V. (2011). Innovative education in agroecology: Experiential learning for a sustainable agriculture. *Critical Reviews in Plant Sciences*, 30(1), 226–237.
<http://dx.doi.org/10.1080/07352689.2011.554497>
- Friere, P. (1970). *Pedagogy of the oppressed*. New York: Continuum.
- Godfray, H. C. J., Beddington, J. R., Crute, I. R., Haddad, L., Lawrence, D., Muir, J., ... Toulmin, C. (2010). Food security: The challenge of feeding 9 billion people. *Science*, 327(5967), 812–818.
<http://dx.doi.org/10.1126/science.1185383>
- Grossman, J. M., Patel, M., & Drinkwater, L. E. (2010). Enhancing undergraduate agro-ecological laboratory employment through experiential learning. *Journal of Natural Resources & Life Sciences Education*, 39(1), 31–39.
<http://dx.doi.org/10.4195/jnrlse.2009.0017n>
- Grossman, J., Sherard, M., Prohn, S.M., Bradley, L., Goodell, S., Andrew, K. (In press). An exploratory analysis of student-community interactions in urban agriculture. *Journal of Higher Education Outreach and Engagement*.
- Hart, M.U. (1990). Liberation through consciousness raising. In J. Mezirow and Associates (Eds.), *Fostering critical reflection in adulthood: A guide to transformative and emancipatory learning* (pp. 47–73). San Francisco, CA: Jossey Bass.

- Hassanein, N. (2003). Practicing food democracy: A pragmatic politics of transformation. *Journal of Rural Studies*, 19, 77-86.
- Hinrichs, C. C. (2007). Introduction: Practice and place in remaking the food system. In C. C. Hinrichs & T. A. Lyson (Eds.), *Remaking the North American food system: Strategies for sustainability* (pp. 1-15). Lincoln, Nebraska: University of Nebraska Press.
- Huba, M. E., & Freed, J. E. (2000). *Learner-centered assessment on college campuses: Shifting the focus from teaching to learning*. Needham Heights: Allyn & Bacon.
- Hughes C., Welsh, M., Mayer, A., Bolay, J., & Southard, K. (2009). An innovative university-based mentoring program: Affecting college students' attitudes and engagement. *Michigan Journal of Community Service Learning*, 16(1), 69-78.
- Tolbert, C. M., Irwin, M. D., Lyson, T. A., & Nucci, A. R. (2002). Civic community in small-town America: How civic welfare is influenced by local capitalism and civic engagement. *Rural Sociology*, 67(1), 90-113. <http://dx.doi.org/10.1111/j.1549-0831.2002.tb00095.x>
- Jordan, N. R., Andow, D. A., & Mercer, K. L. (2005). New concepts in agroecology: A service-learning course. *Journal of Natural Resources and Life Sciences Education*, 34, 83-89.
- Kellogg Commission on the Future of State and Land-Grant Colleges. (1999). *Returning to our roots: The engaged institution*. Washington, D.C.: National Association of State Universities and Land-Grant Colleges.
- Lyson, T. (2004). *Civic agriculture: Reconnecting farm, food, and community*. Medford, Massachusetts: Tufts University Press.
- McGirr, D., Kull, R., & Enns, K. S. (2003). Town and gown. *Economic Development Journal*, 2, 16-23.
- McMillan, D. W., & Chavis, D. M. (1986). Sense of community: A definition and theory. *Journal of Community Psychology*, 14(1), 6-23. [http://dx.doi.org/10.1002/1520-6629\(198601\)14:1%3C6::AID-JCOP2290140103%3E3.0.CO;2-I](http://dx.doi.org/10.1002/1520-6629(198601)14:1%3C6::AID-JCOP2290140103%3E3.0.CO;2-I)
- Melaville, A., Berg, A. C., & Blank, M. J. (2006). *Community-based learning: Engaging students for success and citizenship*. Coalition for Community Schools. Retrieved from <http://www.communityschools.org/assets/1/AssetManager/CBLFinal.pdf>
- Molnar, C., Ritz, T., Heller, B., & Solecki, W. (2010). Using higher education-community partnerships to promote urban sustainability. *Environment: Science and Policy for Sustainable Development*, 53(1), 18-28. <http://dx.doi.org/10.1080/00139157.2011.539944>
- Motavalli, P., Patton, M. D., & Miles, R. J. (2007). Use of web-based student extension publications to improve undergraduate student writing skills. *Journal of Natural Resources and Life Sciences Education*, 36(1), 95-102.
- National Research Council of the National Academies [NRC]; Division on Earth and Life Studies; Board on Agriculture and Natural Resources Board on Life Sciences. (2009). *Transforming agricultural education for a changing world*. Washington, D.C.: The National Academies Press.
- Parr, D., Trexler, C., Khanna, N., & Battisti, B. (2007). Designing sustainable agriculture education: Academics' suggestions for an undergraduate curriculum at a land-grant university. *Agriculture and Human Values*, 24(4), 523-33.
- Peters, S. J., Jordan, N. R., Adamek, M., & Alter, T. R. (Eds.). (2005). *Engaging campus and community: The practice of public scholarship in the state and land-grant university system*. Dayton, Ohio: The Kettering Foundation Press.
- Poincelot, R. P., Francis, C. A., & Bird, G. W. (2006). Overview of the educational social contract: Building a foundation for sustainable agriculture. In C. Francis, R. Poincelt, & G. Bird (Eds.), *Developing and extending sustainable agriculture: A new social contract* (pp. 1-23). Binghamton, New York: Haworth Press.
- Smith, S., & Grossman, J. (2011, Oct 15-19). *Preparing students for a diverse future: Designing and evaluating a cultural competency training program for community engagement in agriculture*. Published abstract, Soil Science Society of America International Meetings. San Antonio, Texas.
- Strand, K. J., Cutforth, N., Stoecker, R., Marullo, S., & Donohue, P. (2003). *Community-based research and higher education: Principles and practices*. San Francisco: Jossey-Bass.
- Strauss, A. L. (1987). *Qualitative analysis for social scientists*. Cambridge, UK: Cambridge University Press. <http://dx.doi.org/10.1017/CBO9780511557842>
- Sustainable Agriculture Education Association [SAEA]. (n.d.). Promoting the teaching and learning of sustainable agriculture. Retrieved from <http://www.sustainableaged.org/About/tabid/56/Default.aspx>

- Thomson, J. S., Maretzki, A. N., & Harmon, A. H. (2007). Community-initiated dialogue: Strengthening the community through the local food system. In C. C. Hinrichs & T. A. Lyson (Eds.), *Remaking the North American food system: Strategies for sustainability* (pp. 183–200). Lincoln and London: University of Nebraska Press.
- Walvoord, B. E. (2004). *Assessment clear and simple: A practical guide for institutions, departments, and general education* (Second edition). San Francisco: Jossey-Bass.
- Wiedenhoef, M., Simmons, S., Salvador, R., McAndrews, G., Francis, C., King, J., & Hole, D. (2003). Agroecosystems analysis from the grass roots: A multidimensional experiential learning course. *Journal of Natural Resources and Life Science Education*, 32, 73–79.
- Wright, W. D. (2006). Civic engagement through civic agriculture: Using food to link classroom and community. *Teaching Sociology*, 34(3), 224–235.
<http://dx.doi.org/10.1177/0092055X0603400302>

Engaging values in sustainable agriculture and food systems education: Toward an explicitly values-based pedagogical approach

Ryan E. Galt,^{a,*} Department of Human and Community Development & Agricultural Sustainability Institute, University of California, Davis

Susan F. Clark,^b Department of Human Nutrition, Foods and Exercise, Virginia Tech

Damian Parr,^c Sustainable Agriculture Education Association

Submitted 5 December 2011 / Revised 10 February and 21 March 2012 / Accepted 21 March 2012 / Published online 26 May 2012

Citation: Galt, R. E., Clark, S. F., & Parr, D. (2012). Engaging values in sustainable agriculture and food systems education: Toward an explicitly values-based pedagogical approach. *Journal of Agriculture, Food Systems, and Community Development*, 2(3), 43–54.
<http://dx.doi.org/10.5304/jafscd.2012.023.006>

Copyright © 2012 by New Leaf Associates, Inc.

Abstract

Agriculture education programs that provide integrative learning experiences that reflect the complexities, values, and challenges inherent to sustainable agriculture and food systems (SAFS) continue to evolve as faculty, staff, and students implement, experience, and modify them. Higher education institutions, especially land-grant universities, have strengths that position them to implement transformative learning and action methodologies. In this article we explore the principles, approaches, and practices consistent with integrative learning and a values-based pedagogical approach to curriculum design and

teaching specific to SAFS. By a values-based pedagogical approach, we mean paying explicit attention to the values that (1) underpin different agricultural and food systems and their governance, (2) inform and shape educational strategies and experiences, and (3) are held by different individuals in various encounters in the learning environment. A values-based approach to SAFS curriculum development, teaching, and integrative learning is dynamic rather than static. We provide illustrations of practices across the education “life-cycle” — curriculum design, implementation, and evaluation — that have used values-based pedagogy to guide the development, modification, and strengthening of SAFS curricula. Finally, we discuss some limitations and issues that arise when using such pedagogical frameworks. We conclude by challenging educators to focus on connecting values relevant to SAFS with innovative curricular practices that allow emergence of new ways of teaching, learning, and knowing for all.

^{a,*} *Corresponding author:* Ryan Galt, 1309 Hart Hall, One Shields Avenue, Davis, CA 95616 USA; +1-530-754-8776; regalt@ucdavis.edu

^b 202 Wallace Annex, Virginia Tech, Blacksburg, VA 24061 USA; +1-540-231-8768; sfclark@vt.edu

^c <http://sustainableaged.org/>; dmparr@ucdavis.edu

Keywords

appreciate inquiry, experiential learning, food systems, integrative learning, land-grant universities, sustainable agriculture, values

Introduction

Universities need to be more responsive to the need to enact curricular change if we are to prepare students to understand the interconnections between rapidly changing agrifood systems and environmental, economic, and societal contexts, and to help them to act as responsible, productive, and innovative citizens in a dramatically changing world. We see movement toward these ends (see introductory article by Jacobsen et al., in this issue), and we note that today's sustainable agriculture and food systems¹ (SAFS) educational landscape continues to evolve as faculty, staff, students, and administrators actively devise strategies to create learning contexts that better reflect their values and goals than does the current context. Whether we create new programs or modify existing ones, there appears to be an emerging consensus that fundamental changes are necessary in both *what* and *how* we teach (Boyer Commission, 1998; National Academy of Sciences [NAS], 2009; Osborne, 2007). In this paper, we discuss our experiences with formal educational opportunities that reflect the complexities and current and future challenges inherent to SAFS.

The National Academy of Sciences (NAS) (2009) report *Transforming Agricultural Education for a Changing World* offers nine recommendations for transforming agricultural and life science education to better address our agricultural systems' need to adapt to rapidly changing social and biophysical environments. The integrated, interdisciplinary learning strategy advocated by the report's authors implies a need to shift teaching methodology and curriculum design. With integrated learning, students not only learn theory but also gain authentic experiential practice and are able to integrate theory and practice as *praxis*. Likewise, educators, practitioners, and employers understand

that SAFS education for undergraduates should provide diverse opportunities to examine complex problems from multiple perspectives, connect theory and action inside and outside the classroom, and contend with the ethical implications and complex realities surrounding SAFS (Parr, Trexler, Khanna, & Battisti, 2007).

Institutions of higher education have recently developed different learning environments that challenge conventional modes of teaching and extend beyond traditional academic boundaries, i.e., experiential, interdisciplinary, systems-based education (Boyer Commission, 1998; Francis, Leiblein, Helenius, Salomonsson, Olsen, & Porter, 2001; Huber & Hutchings, 2004; Kolb, 1984; Markus, Howard, & King, 1993; Newell, 2001; Parr & Van Horn, 2006). A recurring theme found in the SAFS educational literature concerns the valuable role of community engagement; community-based social learning is becoming a more popular way of engaging students and cultivating responsive, reflective, and flexible learning environments (Aaker, 2007; Emery, Flora, & Fey, 2006; Francis et al., 2001; Lieblein, Østergaard & Francis, 2004). Specifically within land-grant universities (LGUs), many students and faculty members are creating momentum for achieving changes similar to those outlined in the NAS 2009 report, and the number of institutions with such SAFS programs continues to grow (Sustainable Agriculture Education Association [SAEA], 2011).

Most SAFS programs now embrace the notion that sustainability is inherently based on values, with increasing recognition that the question of what is to be sustained is ultimately a value judgment (Allen, Dusen, Lundy, & Gliessman, 1991). Yet based on our conversations at SAFS education conferences, we have noticed that many of us teaching within SAFS programs come from scientific traditions in which practitioners are largely silent about the values embodied in their decisions and work because they have been trained to see science as a values-free activity (see also Lieblein, Breland, Østergaard, Salomonsson, & Francis, 2007; Steiner and Posch, 2006). This fundamental tension — between what we have been prepared to do and what we must do —

¹ We refer to sustainable agriculture and food systems (SAFS) education in a similar but not synonymous way as our colleagues who refer to sustainable agriculture (SA) education.

means that thinking through the role of values in our educational work has never been more urgent.

In this paper, we assert that a values-based approach² — which we define as teaching that pays explicit attention to the values that (1) underpin different agricultural and food systems and their governance, (2) inform and shape educational strategies and experiences, and (3) are held by different individuals in various encounters in the learning environment — can usefully guide the design, revision, and strengthening of SAFS teaching and curricula. We discuss the processes of designing, implementing, and evaluating SAFS curricula along the principles of values-based pedagogy, emphasizing *integrative learning*, where students “connect skills and knowledge from multiple sources and experiences; apply theory to practice in complex social and biophysical settings; utilize diverse and even contradictory points of view; and understand issues and positions contextually” (Huber & Hutchings, 2004, p. 13).³ Finally, we discuss some limitations and issues that arise when using such an educational approach. We do not pretend to be subject matter experts in all of these disciplinary domains, but rather write as practitioners and lifelong learners who have grappled with these issues in our experiences in the educational system and in the programs for which we now have responsibility. Thus we do not go into great depth in all matters discussed here, but by drawing on our two programs which utilized two different but related approaches, we aim to show how one might holistically approach the educational challenges and opportunities presented by recognizing the value-laden character of agricultural and food systems.

² We maintain that all pedagogical approaches are based on values, even if they remain implicit and unexamined. Thus, what we are advocating is an “explicitly values-based pedagogical approach,” for which we use the shorthand “values-based approach” here.

³ To help students develop integrative habits of mind, experiential strategies like service learning and internships invite students to make connections between coursework and community, and theory and practice. Integrative learning is further strengthened when it is infused into decisions about course design, pedagogy, and assignments, and allows time and space for dialogic processes.

Values and Educational Praxis: Challenges and Ways Forward

Values are a set of interpretations or beliefs concerning things of importance. They are socially constructed and personally developed within social contexts, becoming extensions of our subjective viewpoints in that they are personal judgments of what matters. Educational institutions by their very nature provide a context in which students’ values and ethical development are unavoidably influenced (Berkowitz, 1997; Colby, Ehrlich, Beaumont, & Stephens, 2003). Scholarly work is replete with arguments for and evidence about how our nation’s democracy and our world’s shared future depend on a more knowledgeable, civically engaged, and globally responsible citizenry (Association of American Colleges and Universities [AAC&U], 2008; AAC&U, 2010; Dey, Barnhardt, Antonaros, Ott, & Holsapple, 2009; Hersch & Schneider, 2005; Palmer, 2011).

The qualities needed to respond to twenty-first century conditions described in existing SAFS literature both implicitly and explicitly infer a need to shape students’ academic experience through a values-based approach. If they embrace integrative learning, LGUs are potentially well equipped to help prepare students for civically engaged agriculture because of the wide range of applied disciplines taught and their commitment to community-based outreach and engagement (Colasanti, Reau, & Wright, 2009). Yet, despite their strengths, LGUs face significant epistemological⁴ challenges if they are to succeed in fulfilling their mandate as the preeminent adult agricultural education institutions in the U.S. Chief among these challenges is the tradition of positivism and the imbalanced privileging of objectivity in research and science education that we explore below.

Most debates over scientific inquiry being “value free” attempt to compress a large number of claims about objectivity into a singular concept that problematically conflates the various aspects (Daston, 1992; Lacey, 1999). Objectivity has made its way into pedagogy in the form of what prominent educator Parker Palmer calls “objectivism,”

⁴ Epistemology refers to the rules that govern how we know what we know.

often with dire consequences. Objectivism as a philosophical position “portrays truth as something we can achieve only by disconnecting ourselves, physically and emotionally, from the thing we want to know” (Palmer, 2007, p. 52). If we get too close to something, say adherents of objectivism, our subjective lives will contaminate the thing and our understanding of it, possibly biasing us toward it, thus threatening the purity of our knowledge. It is no wonder that under this epistemological perspective, values are so rarely explicitly discussed in higher education teaching, especially in the biophysical sciences (Palmer, 2007).

We argue that meeting the needs of a changing agrifood system will necessitate a shift in teaching and learning paradigms at LGUs, away from objectivism and toward approaches that deal specifically with the value-laden nature of agriculture and food systems generally (cf. Lieblein et al., 2007). In short, teaching approaches must enable students to deal with Schön’s “swamp”:

In the varied topography of professional practice, there is a high, hard ground which overlooks a swamp. On the high ground, manageable problems lend themselves to solution through the use of research-based theory and technique. In the swampy lowlands, problems are messy and confusing and incapable of technical solution. The irony of this situation is that the problems of the high ground tend to be relatively unimportant to individuals or to society at large, however great their technical interest may be, while in the swamp lie the problems of greatest human concern. The practitioner is confronted with a choice. Shall he/she...remain on the high ground where he can solve relatively unimportant problems according to his standards of rigor, or shall he descend to the swamp of important problems and non-rigorous inquiry? (2001, p. 191)

We believe that such fundamental reform in SAFS education must occur across the entire “life cycle” of educational programming, from curriculum design and courses, to teaching

approaches and evaluation. We maintain that each of these interdependent components must be overlaid with a focus on *praxis*: practice informed by theories, and theories informed by practice. Thus, the sections below discuss each of these elements of the educational life-cycle by identifying theories and specific practices consistent with a values-based, integrative-learning approach. We draw upon our praxis with our two SAFS programs, a major and a minor, summarized in table 1 (next page).

We must note from the outset that we have noticed in faculty meetings regarding SAFS programs and course creation that faculty sometimes express a fear of discussing values directly in the classroom or, even more pronounced, asking students to consider the relevancy of certain values. In such discussions regarding curriculum development and teaching, most faculty members take the stance that their role is not to impose values on students. While we are sympathetic to the goal of non-imposition, we have two issues with this stance. First, logically, it does not follow that discussing values and even identifying our own values will result in an imposition of those values on our students. Creating a safe space for deliberations of deeply important matters allows for engagement without domination that coerces conversion (as we discuss vis-à-vis teaching practice, below). Second, when we look at the educational missions and goals of our campuses, they are all based on values, whether explicitly identified or not. For instance, the formally stated learning goals of one of our universities include: “Develop higher cognitive skills — Critical thinking, creativity, analytical ability” (University of California, Davis, n.d.). Such a statement suggests that the campus community has jointly agreed to value the cognitive domains of students, and to intentionally develop them. By asking our students to learn about, practice, and, ultimately, conform to academic norms, we are cultivating certain values and virtues, and not others. The battles of religious versus scientific authority over the last few centuries have often been about the values underlying epistemology — on the one hand, conforming to orthodox religious perspectives because it is what the powerful say is true, versus the critical questioning and probing of

Table 1. Comparison of Two Sustainable Agriculture and Food Systems Programs

Characteristics	Major	Minor
Curriculum Development	<i>Interdisciplinary Curriculum Committees:</i> Faculty (8 departments), students; Delphi survey of academics, students, alumni, and practitioners	<i>Interdisciplinary Curriculum Task Force:</i> Faculty (8 departments), students, practitioners, NGOs, outreach and dining garden staff
Guiding Values	<ul style="list-style-type: none"> ▪ Interdisciplinary depth of knowledge ▪ Experiential learning, integrating theory and practice. ▪ Systems thinking ▪ Skill development, practical and social skills ▪ Linking real-world with classroom ▪ Community building, on and off campus ▪ Adaptive curriculum management 	<ul style="list-style-type: none"> ▪ Ecological stewardship and praxis ▪ Strong local economies ▪ Healthy people and communities ▪ Food security/sovereignty ▪ Collaborative teaching ▪ Experiential-integrative learning ▪ Civic engagement/democratic participation
Curriculum Theoretical Frameworks	<p style="text-align: center;"><i>Major and Minor</i></p> <ul style="list-style-type: none"> ▪ Social Constructivism^a ▪ Experiential Learning^b ▪ Transformational Learning^c ▪ Critical Theory^d ▪ Participatory Learning^e ▪ Action Research^f 	
	<p><i>Major</i></p> <ul style="list-style-type: none"> ▪ Competency development^g 	<p><i>Minor</i></p> <ul style="list-style-type: none"> ▪ Value-based model^h ▪ Appreciative Inquiryⁱ ▪ Community capitals^j
Experiential Teaching Activities	<ul style="list-style-type: none"> ▪ Internships ▪ Fieldwork ▪ Applied production classes ▪ Capstone class with applied team research project ▪ Student Farm 	<ul style="list-style-type: none"> ▪ Community partner fieldwork ▪ Food system case-study analysis ▪ Capstone class: Community action projects with NGO and community-based organizations ▪ Participatory learning and problem-based inquiry: e.g., learning circles.
Evaluation	<ul style="list-style-type: none"> ▪ Competency self-assessments ▪ Peer reviews of team performance ▪ Reflective essays ▪ Portfolios 	<ul style="list-style-type: none"> ▪ Critical reflection statements ▪ Assignment-based assessment ▪ Peer- and self-assessments ▪ Assessment-based portfolios ▪ Faculty-student-community partner evaluation

^a Vygotsky, 1978; ^b Kolb, 1984; ^c Mezirow, 2000; ^d Habermas, 1987; ^e Pretty, 1995; ^f Bawden, 1990; ^g Raven, 2001; Weik et al., 2011; ^h Aaker, 2007; ⁱ Cooperrider et al., 2008; ^j Emery et al., 2006

various objects of study and the taking of empirical data seriously that is highly valued in most quarters of the academy. This means that values always underlie the academic enterprise, specifically guiding its ways of inquiry and both interpretive and empirical knowing.

Furthermore, campus mission statements imply that their faculty consider it insufficient for their students to cultivate academic values in isolation. In fact, universities commonly espouse cultivation of “virtues” or “values,” which includes taking ethical stances, including resolution through

nonviolent means, treating people as ends and not merely as means, etc. Taking our two campuses, UC Davis and Virginia Tech, these include ethics, responsibility, honor, tolerance, mutual respect, empathy, freedom of inquiry, personal and institutional integrity, and a culture of continuous improvement (University of California, Davis, n.d.; Virginia Tech, n.d.). Deeply unethical things can happen when the quest to know is disconnected from a deep commitment to the well-being of others, as numerous examples of medical research, such as the Tuskegee syphilis experiments, make clear (Caplan, 1992; Fairchild & Bayer, 1999). We cannot shy away from ethical commitments, our values, and others' values, even if they make us uncomfortable. Rather, we need ways to productively engage with questions of values.

Curriculum Design

In our experiences, designing a curriculum using a values-based approach should start by seeking out multiple and divergent perspectives, worldviews, and paradigms. These differences cannot be reduced merely to correct/incorrect, true/false views of the world and things within it. Rather, many of these differences are underpinned by different value systems, including their ethical and moral dimensions, as well as different epistemological commitments.

It is useful to view SAFS education as having a broad constituency, both internal and external to the university. Internally, in programs created by faculty and students from different disciplines, discussions around what is required in a SAFS curriculum need to be guided by openness and interest in the importance of other disciplines and ways of knowing. There are tensions in that those involved have a tendency to push for their discipline being represented within the curriculum; this can lead faculty to create an imposing curriculum, manifesting the feeling that it has to cover all the bases. Externally, everyone is sustained by food, and in a democratic society everyone should have a say in food governance. There are also stakeholders who can contribute to designing SAFS education because they have more detailed knowledge of components of agriculture and the food system, including those who work in the food system,

academics, current students, former students, community-based organizations, nongovernmental organizations (NGOs) and government agencies involved in SAFS work. Both internally and externally, individuals within these various positions often have diverging perspectives on a range of issues related to sustainability, especially regarding the values that currently underlie, as well as should underlie, the food system. Resolving the issues stemming from these diverging perspectives requires consensus-building across these diverse constituencies and ways of knowing. These issues can be solved or at least highlighted through methods like participatory research used by development practitioners and some social scientists, as these include facilitating group processes such as elucidating different perspectives (Pretty, Guijt, Thompson, & Scoones, 2002). Our two programs, for example, engaged students, community partners, and faculty in efforts to inform and shape the curriculum.

Although our programs' curriculum design processes were conceptualized prior to the release of the NAS (2009) report, they both align strongly with its recommendations and those of the AAC&U that educators better prepare students for civic responsibility and engagement. This speaks to the current milieu and emerging discourse within the SAFS world. Both programs have created space to think holistically about SAFS, connected program values to empirical inquiry, enhanced critical and systems-level thinking, and cultivated social and cultural knowledge regarding healthy SAFS practices. Some scaffolding frameworks that anchor these programs include competency frameworks, appreciative inquiry, and experiential learning through fieldwork in community action projects, which we briefly explain below.

Competency frameworks, which identify the competencies (functionally linked knowledge, skills, and attitudes) that should be developed from particular educational experiences, and can be applied in other contexts, can act as the structure around which curriculum goals are developed and learning activities designed. Emerging consensus exists around the idea that normative competencies are vitally important to sustainability education (Galt, Parr, & Jagannath, in press; Wiek,

Withycombe, & Redman, 2011). As we anticipate futures based on current trends and countertrends, the question of *what should be* and *who should shoulder the cost* is always central, and debates over this depend on competing values, not merely empirics. Wiek et al. define normative competence vis-à-vis sustainability as:

the ability to collectively map, specify, apply, reconcile, and negotiate sustainability values, principles, goals, and targets. This capacity enables individuals to, first, collectively assess the (un-)sustainability of current and/or future states of social-ecological systems and, second, to collectively create and craft sustainability visions for these systems. (2011, p. 209)

This capacity requires learners to acquire normative knowledge, including concepts of ethics, equity, justice, and social-ecological integrity, and methods like structured visioning and multicriteria assessment.

Appreciate inquiry is a form of action research that attempts to advance the development of an organization or system, including curriculum (Cooperrider, Whitney, & Stavros, 2008). Current models of curricular design are typically deficit-based; the gap between current performance and desired performance is analyzed and new instruction is designed to fill that gap. In contrast, appreciate inquiry (AI) methodology elucidates learners' values and maintains that they go beyond acquiring knowledge to become knowledge producers. Furthermore, AI supports a values-based SAFS curriculum planning-teaching-learning-assessment feedback cycle.

Incorporating AI into curriculum planning teams and course projects can become a blueprint for how to produce the organizational change needed to support values-based SAFS education. AI begins with researchers and/or practitioners identifying examples of the system at its best — its highest values and aspirations — followed by what is applicable (to the system in which the inquiry takes place and can be validated in action), provocative (by creating knowledge, models and images that are compelling to system members and

provoke people to take action), and finally collaborative (since system members must be part of the design and execution of the inquiry). AI processes result in new knowledge, models, and theories that serve as generative metaphors that can compel new action. A focus on changing how people think instead of what people do, and a focus on supporting self-organizing change processes that flow from new ideas rather than leading to implementation of directives, appear to be key contributors to AI-affected change.

Fieldwork integrated into curriculum offers a wide range of important integrative learning opportunities. In some cases it allows students to actively participate in thoughtfully organized service-orientated experiences that meet the articulated needs of a civic agriculture stakeholder and/or initiative in a real community context. Fieldwork focused on community projects that is research- or action-based requires students to seek rigorous answers to questions in the context of a specific social and physical location within the food system. Having structured opportunities for students to dialogue with people outside the classroom and asking them why they do what they do allows students to see other perspectives and discover what values drive people to do things, and how these values often conflict with existing societal arrangements. As Allen (2010, p. 298) notes, "Local food efforts are generally embedded in and must act within social structures that may be contrary to their ideals and values." Seeing these efforts, and the larger-scale constraints upon them, gives students the opportunity to attempt reconciliation of contradictions between what *is* and what they think and feel *should be*. Thus, designing curriculum around fieldwork is an important element of values-based pedagogy.

Teaching Practice

The classroom is a microcosm of the external community in important ways — for example, lines of social difference and different socialization experiences can create tension, but also rich learning opportunities if handled well — and how we conduct our classes reflects our values and conceptions of proper human relationships (hooks, 1994). It can be paralyzing to seriously consider the

question: Is the way I teach a true reflection of my values, and does it serve my ultimate goals for this class, society, my students, and myself? But posing these kinds of questions can also provide liberation from rote tradition if it encourages sympathetic self-reflection that spurs changes in practice (Palmer, 2007).

Our main principles in teaching from a values-based pedagogical approach are that we need to (1) highly value our students as whole people and adults, with their own subjective domains and values, and (2) identify the values that underlie our teaching. Instead of fearing encounters with individuals who hold different belief and value systems than us, we can demonstrate our respect, and even a need, for accepting our differences (Palmer, 2007). For example, learning based on inclusive deliberation, from divergence to convergence and back again, is a process that never ends, but rather permeates the human endeavor to know, and is an ethos of democratic societies. Palmer argues that truth, in all modes, comes out of a *complex process of shared inquiry* — in short, a community of truth. This is at the heart of all academic research endeavors as well, formalized in processes like peer review. A community of truth is built around “an image of knowing that embraces both the great web of being on which all things depend and the fact that our knowledge of those things is helped, not hindered, by our being enmeshed in that web” (Palmer, 2007, p. 101). This is similar to Bain’s (2004, p. 47) conclusion that the best teachers make this kind of inquiry the center of the classroom experience by cultivating a “natural critical learning environment.”⁵ In this context, knowledge advances through conflict — *not* competition — which is “open and sometimes raucous but always communal, a public encounter in which it is possible for everyone to win by learning and growing” (Palmer, 2007, p. 106). Below we highlight a few practices that help cultivate these integrative teaching and learning

interactions. We cannot do justice to the array of practices available through the subset that we have used, although we note additional practices in table 1 and point to a number of available resources (Bain, 2004; Bean, 1996; Palmer, 2007; Pretty et al., 2002; Weimer, 2002).

Dialogue-based inquiry blended with appreciative inquiry generates “open space” where students can begin unraveling the basic assumptions surrounding agricultural and food issues through dialogue and consensus. Ultimately this can generate a more in-depth and authentic understanding of the values-laden concerns intrinsic to SAFS. Such practice enables students to become active learners and facilitates their academic development, personal growth, and civic engagement.

Collaborative, interdisciplinary teaching promotes sharing of knowledge between faculty, students, and community partners, expanding everyone’s skills and knowledge about SAFS issues and thus benefiting the greater community (Clark & Button, 2011; Newell, 2001). When students are asked to integrate different and often conflicting viewpoints, they frequently show greater knowledge and understanding of the subjects studied and make better decisions as a result (Johnson, Johnson, & Smith, 2000). Furthermore, teaching collaboratively can expand intellectual capacity in ways that transfer new knowledge via other scholastic activity (Newell, 2001). However, we note that the practice of collaborative teaching takes serious commitment from key actors, especially faculty and administrators.

Evaluation

An important question remains about how we assess the outcomes of these kinds of educational praxis, as their very purpose is often qualitatively different from producing students who are masters of a tightly defined, specialized disciplinary knowledge (Boix Mansilla & Dawes Duraising, 2007). Base on our experiences, evaluation is a fundamental, yet commonly undervalued, piece in the pedagogical puzzle. When we take our teaching as seriously as our research scholarship, that is, we treat it as a serious intellectual endeavor, it means asking critical questions about its success or limitations, and gathering data to answer these questions

⁵ This involves embedding the skills and information we want to teach in assignments through questions and authentic tasks students should find fascinating, and through challenging students to rethink assumptions and examine their mental models of reality and how they came into being.

(Bain, 2004). Our experiences suggest that both faculty praxis and student learning can improve considerably, and in some cases rapidly, due to more holistic evaluation efforts.

Although we deal with a values-based approach linearly here — from design to teaching practice to evaluation — we note the importance of making educational praxis an iterative cycle, from design to implementation to evaluation to (re)design, to restart the cycle anew. For us, using evaluation that takes values seriously has meant that students should be able to ask what it is that *they* value and how *their* education serves and/or does not serve their interests. Ultimately, this would mean that students help create the questions and criteria by which their learning and formal educational activities are evaluated. Thus we briefly discuss a number of models relevant to the task of evaluating values-based education, highlighting their relative strengths and weaknesses. We move from those that follow the principles outlined above most weakly to those that align most strongly. However, there are no perfect evaluation methods, so we must make tradeoffs between intensity of data collection and analysis efforts, resources available, and intent of the evaluation (e.g., comprehensive curriculum evaluation vs. assessing specific assignments, internal communication versus external accreditation, etc.) (Patton, 2002). Many such methods have been developed; we cannot list them exhaustively, but rather point our readers toward some available resources.

Standardized evaluations used within higher education attempt to address the question of overall student learning. Because most institutions limit who is allowed to see which evaluations (the assessed faculty can see them, but their students and colleagues outside their unit and merit committees cannot), the results tell us very little in comparative context, that is, how well students are learning in these kinds of classes relative to classes using other kinds of instruction methods. Generally, these evaluations are not sufficient for the task at hand, “unless one believes that all varieties of good teaching can be crammed into the scales of a survey questionnaire” (Palmer, 2007, p. 96).

Customized evaluations, created by participating students and/or faculty members, allow evaluation questions to be tailored to the circumstances of the class. These kinds of assessments can require a range of time to perform and can employ a number of methods, including surveys, some of which can allow participants to shape the content of the survey. These evaluations can be strengthened by using independent campus centers focused on teaching and learning outcomes, available on most campuses, as this allows for a third-party data collector.

Reflective essays are assignments that require students to reflect on their learning as a personal experience by connecting their interests, values, and development with other cognitive and affective dimensions of learning. As such, they can serve dual purposes. First, they complete the learning cycle of experiential learning, meaning that it is not just experiences that help us learn, but, crucially, reflection upon those experiences (Dewey, 1938; Kolb, 1984). Second, reflective essays provide data-rich windows into students’ learning experiences to see how values influence student learning within classes and across a curriculum as a whole (Galt, Parr, Van Soelen Kim, Beckett, Lickter, & Ballard, in press).

Self-assessments, wherein students are taken to be valid sources of both their own value systems and of self-knowledge, arise from critical pedagogy (Fernández-Balboa, 2007). The faculty at Alverno College in Milwaukee has done a considerable amount of work conceptualizing, refining, and practicing this model, resulting in an engaged praxis that they clearly communicate to students and outsiders (Alverno College Faculty, 1994; 2000). In our own practice, we have combined self-assessments with competency development frameworks so that students self-assess their development across dozens of competencies at different stages in courses (Galt, Parr, Van Soelen Kim, et al., in press); we are currently working to integrate self-assessments across the curriculum. Similarly, peer-to-peer and external advisory board assessments can give students greater responsibility for their learning and autonomy to better understand the real world.

Conclusions

The NAS (2009) report recommends that we “situate” agricultural instruction at institutions of higher learning in ways that focus on integrative learning and its outcomes in order to have graduates who are competent in connecting and applying knowledge and skills from multiple sources to address issues in real-world settings. This requires moving away from the paradigm of positivism, and its corollary of objectivism in the classroom, and toward more experiential, interdisciplinary, and systems-based approaches to education.

We believe that these approaches are deeply enriched when values become a guiding element and an object for deliberation. When learning and teaching methodologies prompt faculty and student reflection and deliberation upon the multiple values that influence and shape SAFS, these methods can further students’ education. They do this by challenging them via participatory dialogue, raising awareness about thought and language, developing analytical skills, and facilitating their increased agency through civic action. In our own experiences, the values-based pedagogical approach described above has been a crucial element in promoting democratic practice and successfully transforming students into lifelong, critically reflective learners who practice social and environmental responsibility and civic engagement within local and global communities (see also Galt, Parr, Van Soelen Kim, et al., in press). By developing innovative SAFS educational programs that engage values directly — by examining how they underpin food, agricultural, and social systems; how they underpin pedagogy; and the differences and similarities in values held by different individuals and groups — we strongly believe that teaching will advance learning outcomes essential for responsible citizenship.

Moving in this direction will require commitment from individuals and groups within LGUs who see the need to deal with Schön’s (2001) “swamp” of complex problems that matter greatly to society but that cannot be addressed through specialist and technical approaches alone, and want to help prepare others to do the same. The work will also support the integrity of LGUs, as a deliberation on values will be essential for charting

their future course and ensuring they meet their mission of serving the public good. More appropriate educational methodologies that deal with the complexities of SAFS, including being explicit about values, will facilitate the emergence of more powerful ways of meeting the challenges and opportunities of agriculture and food systems for all peoples, a charge LGUs should still take seriously. While potentially frightening, making values — especially those that conflict with economic instrumentalism and efficiency — an explicit underpinning of educational activities and an explicit focus of critical attention yields large rewards, and is crucially important given the challenges of today.



References

- Aaker, J. (2007). *The Heifer Model: Cornerstones values-based development*. Little Rock, Arkansas: Heifer Project International.
- Allen, P. (2010). Realizing justice in local food systems. *Cambridge Journal of Regions, Economy and Society*, 3(2), 295-308. <http://dx.doi.org/10.1093/cjres/rsq015>
- Allen, P., Dusen, D. V., Lundy, J., & Gliessman, S. (1991). Expanding the definition of sustainable agriculture. *American Journal of Alternative Agriculture*, 6(1), 34–39. <http://dx.doi.org/10.1017/S0889189300003787>
- Alverno College Faculty. (1994). *Student assessment-as-learning at Alverno College*. Milwaukee, Wisconsin: Alverno College Institute.
- Alverno College Faculty. (2000). *Self-assessment at Alverno College*. Milwaukee, Wisconsin: Alverno College Institute.
- Association of American Colleges and Universities [AAC&U]. (2008). *College learning for the new global century*. Washington, D.C.: Author.
- Association of American Colleges and Universities [AAC&U]. (2010). *Developing a moral compass: What is the campus climate for ethics and academic integrity?* Washington, D.C.: Author.
- Bawden, R. (1990). Towards action research systems. In O. Zuber-Skerritt (Ed.), *Action research for change and development* (pp. 10–35). Brisbane: Centre for the Advancement of Learning and Teaching (CALT), Griffith University.
- Bain, K. (2004). *What the best college teachers do*. Cambridge, Massachusetts: Harvard University Press.

- Bean, J. C. (1996). *Engaging ideas: The professor's guide to integrating writing, critical thinking, and active learning in the classroom*. San Francisco: Jossey-Bass.
- Berkowitz, M. W. (1997). The complete moral person: Anatomy and formation. In J. M. Dubois (Ed.), *Moral issues in psychology: Personalist contributions to selected problems* (pp. 11–41). Lanham, Maryland: University Press of America.
- Boix Mansilla, V., & Dawes Duraising, E. (2007). Targeted assessment of students' interdisciplinary work: An empirically grounded framework proposed. *The Journal of Higher Education*, 78(2), 215–237. <http://dx.doi.org/10.1353/jhe.2007.0008>
- Boyer Commission. (1998). *Reinventing undergraduate education: A blueprint for America's research universities*. Carnegie Foundation for the Advancement of Learning. Retrieved from <http://www.naples.cc.sunysb.edu/Pres/boyer.nsf/on>
- Caplan, A. L. (1992). Twenty years after: The legacy of the Tuskegee syphilis study. *Hastings Center Report*, 22, 29–40. <http://dx.doi.org/10.2307/3562946>
- Clark, B. & Button, C. (2011). Sustainability transdisciplinary education model: Interface of arts, science, and community (STEM). *International Journal of Sustainability in Higher Education*, 12(1), 41–54. <http://dx.doi.org/10.1108/14676371111098294>
- Colasanti, K., Wright, W., & Reau, B. (2009). Extension, the land-grant mission, and civic agriculture: Cultivating change. *Journal of Extension*, 47(4), 1–10.
- Colby, A., Ehrlich, T., Beaumont, E. & Stephens, J. (2003). *Educating citizens: Preparing America's undergraduates for lives of moral and civic responsibility*. San Francisco: Jossey-Bass.
- Cooperrider, D. L., Whitney, D., & Stavros, J. M. (2008). *Appreciative inquiry handbook*. Brunswick, Ohio: Crown Custom Publishing, Inc.
- Daston, L. (1992). Objectivity and the escape from perspective. *Social Studies of Science*, 22(4), 597–618. <http://dx.doi.org/10.1177/030631292022004002>
- Dewey, J. (1938). *Experience and education*. New York: The Macmillan Company.
- Dey, E. L., Barnhardt, C. L., Antonaros, M., Ott, M. C., & Holsapple, M. A. (2009). *Civic responsibility: What is the campus climate for learning?* Washington, D.C.: Association of American Colleges and Universities.
- Emery, M., Fey, S., & Flora, C. (2006). Using community capitals to develop assets for positive community change. *CD Practice*, 13, 1–19. Retrieved from <http://www.comm-dev.org/commdev/collection/2006%2013.pdf>
- Fairchild, A. L., & Bayer, R. (1999). Uses and abuses of Tuskegee. *Science*, 284(5416), 919–921. <http://dx.doi.org/10.1126/science.284.5416.919>
- Fernández-Balboa, J.-M. (2007). Dignity and democracy in the college classroom: The practice of student self-examination. In R. A. Goldstein (Ed.), *Useful theory: Making critical education practical* (pp. 105–128). New York: Peter Lang.
- Francis, C. A., Leiblein, G., Helenius, J., Salomonsson, L., Olsen, H. & Porter, J. (2001). Challenges in designing ecological agriculture education: A Nordic perspective on change. *American Journal of Alternative Agriculture*, 16(2), 89–95. <http://dx.doi.org/10.1017/S0889189300008985>
- Galt, R. E., Parr, D. M., & Jagannath, J. (In press). Facilitating competency development in sustainable agriculture and food systems education: A self-assessment approach. *International Journal of Sustainable Agriculture*.
- Galt, R. E., Parr, D. M., Van Soelen Kim, J., Beckett, J., Lickter, M., & Ballard, H. L. (In press). Transformative food systems education in a land-grant college of agriculture: The importance of learner-centered inquiries. *Agriculture and Human Values*.
- Habermas, J. (1987). *Theory of communicative action, volume two: The critique of functionalist reason*. Boston: Beacon Press.
- Hersh, R. H., & Schneider, C. G. (2005). Fostering personal and social responsibility on college and university campuses. *Liberal Education*, 91(3), 6–13.
- hooks, bell. (1994). *Teaching to transgress: Education as the practice of freedom*. New York: Routledge.
- Huber, M. T., & Hutchings, P. (2004). *Integrative learning: Mapping the terrain*. Washington, D.C.: Association of American Colleges and Universities.
- Jacobsen, K. L., Niewolny, K. L., Schroeder-Moreno, M. S., Van Horn, M., Harmon, A. H., Chen Fanslow, Y. H., Williams, M. A., & Parr, D. (2012). Sustainable agriculture undergraduate degree programs: A land-grant university mission. *Journal of Agriculture, Food Systems, and Community Development*. Advance online publication. <http://dx.doi.org/10.5304/jafscd.2012.023.004>
- Johnson, D. W., Johnson, R. T., & Smith, K. A. (2000). Constructive controversy: The educative power of intellectual conflict. *Change*, 32(1), 28–37. <http://dx.doi.org/10.1080/00091380009602706>
- Kolb, D. (1984). *Experiential learning: Experience as the source of learning and development*. Englewood Cliffs, New Jersey: Prentice Hall.

- Lacey, H. (1999). *Is science value free? Values and scientific understanding*. New York: Routledge.
- Lieblein, G., Breland, T. A., Østergaard, E., Salomonsson, L. & Francis, C. (2007). Educational perspectives in agroecology: Steps on dual learning ladder toward responsible action. *NACTA Journal*, 51(1), 37–44.
- Lieblein, G., Østergaard, E., & Francis, C. (2004). Becoming an agroecologist through action education. *International Journal of Agricultural Sustainability*, 2(3), 147–153. <http://dx.doi.org/10.1080/14735903.2004.9684574>
- Markus, G. B., Howard, J. P. F., & King, D. C. (1993). Notes: Integrating community service and classroom instruction enhances learning: Results from an experiment. *Educational Evaluation and Policy Analysis*, 15(4), 410–419. <http://dx.doi.org/10.3102/01623737015004410>
- Mezirow, J. (2000). *Learning as transformation: Critical perspectives on a theory in progress*. San Francisco: Jossey Bass.
- National Academy of Sciences. (2009). *Transforming agricultural education for a changing world*. Washington, D.C.: The National Academies Press.
- Newell, W. H. (2001). Powerful pedagogies. In B. L. Smith and J. McCann (Eds.), *Reinventing ourselves: Interdisciplinary education, collaborative learning, and experimentation in higher education* (pp. 196–211). Bolton, Massachusetts: Anker Publishing.
- Osborne, E. W. (Ed.). (2007). *National research agenda: Agricultural education and communication*. Gainesville, Florida: American Association for Agricultural Education.
- Palmer, P. J. (2007). *The courage to teach: Exploring the inner landscape of a teacher's life*. San Francisco: Jossey-Bass.
- Palmer, P. J. (2011). Higher education and habits of the heart: Restoring democracy's infrastructure. *Journal of College and Character*, 12(3), 1–6. <http://dx.doi.org/10.2202/1940-1639.1823>
- Parr, D. M., Trexler, C. J., Khanna, N. R., & Battisti, B. T. (2007). Designing sustainable agriculture education: Academics' suggestions for an undergraduate curriculum at a land grant university. *Agriculture and Human Values*, 24(4), 523–533. <http://dx.doi.org/10.1007/s10460-007-9084-y>
- Parr, D. M., & Van Horn, M. (2006). Development of organic and sustainable agricultural education at the University of California, Davis: A closer look at practice and theory. *HortTechnology*, 16(3), 426–431.
- Patton, M. Q. (2002). *Qualitative research and evaluation methods* (3rd ed.). Thousand Oaks, California: Sage Publications.
- Pretty, J. N. (1995). Participatory learning for sustainable agriculture. *World Development*, 23(8), 1247–1263. [http://dx.doi.org/10.1016/0305-750X\(95\)00046-F](http://dx.doi.org/10.1016/0305-750X(95)00046-F)
- Pretty, J. N., Guijt, I., Thompson, J., and Scoones, I. (2002). *A trainer's guide to participatory learning and action*. London: International Institute for Environment and Development (IIED).
- Raven, J. (2001). The McBer Competency Framework. In J. Raven and J. Stephenson (Eds.), *Competence in the learning society* (pp. 121–127). New York: P. Lang.
- Schön, D. (2001). The crisis of professional knowledge and the pursuit of an epistemology of practice. In J. Raven and J. Stephenson (Eds.), *Competence in the learning society* (pp. 183–207). New York: P. Lang.
- Steiner, G., & Posch, A. (2006). Higher education for sustainability by means of transdisciplinary case studies: An innovative approach for solving complex, real-world problems. *Journal of Cleaner Production*, 14(9–11), 877–890. <http://dx.doi.org/10.1016/j.jclepro.2005.11.054>
- Sustainable Agriculture Education Association [SAEA]. (2011). *Sustainable Agriculture Education Association: Academic programs*. Retrieved from <http://sustainableaged.org/Resources/AcademicPrograms/tabid/86/Default.aspx>
- University of California, Davis. (n.d.). *Undergraduate education: Educational objectives for students*. Retrieved from <http://undergraduatestudies.ucdavis.edu/educational-objectives.html>
- Virginia Tech. (n.d.) *Office of the President/University Strategic Plan: Undergraduate education*. Retrieved from <http://www.president.vt.edu/strategic-plan/learning.html#undergrad>
- Vygotsky, L. (1978). *Mind in society*. London: Harvard University Press.
- Weimer, M. (2002). *Learner-centered teaching: Five key changes to practice*. San Francisco: Jossey-Bass.
- Wiek, A., Withycombe, L., & Redman, C. L. (2011). Key competencies in sustainability: A reference framework for academic program development. *Sustainability Science*, 6(2), 203–218. <http://dx.doi.org/10.1007/s11625-011-0132-6>

Internationalizing sustainable agriculture education

Michelle S. Schroeder-Moreno,^{a,*} Department of Crop Science, North Carolina State University

Susan F. Clark,^b Department of Human Nutrition, Foods and Exercise, Virginia Tech

Carmen J. Byker,^c Department of Health & Human Development, Montana State University

Xin Zhao,^d Department of Horticultural Sciences, University of Florida

Submitted 6 December 2011 / Revised 2 March, 13 April and 25 April 2012 / Accepted 2 May 2012 /

Published online 27 May 2012

Citation: Schroeder-Moreno, M. S., Clark, S. F., Byker, C. J., & Zhao, X. (2012). Internationalizing sustainable agriculture education. *Journal of Agriculture, Food Systems, and Community Development*, 2(3), 55–68.

<http://dx.doi.org/10.5304/jafscd.2012.023.007>

Copyright © 2012 by New Leaf Associates, Inc.

Abstract

Integration of international learning experiences into sustainable agriculture (SA) educational programs represents a unique and effective approach to help students improve their global awareness and citizenship, intercultural communication, problem-solving skills, and career development. While there are challenges to establishing

international educational activities in emerging SA programs, the benefits of providing students with a global perspective to the world's food systems far exceed those challenges. This paper formalizes key considerations and diverse approaches for developing student-centered international educational opportunities for sustainable agriculture that have been assembled from literature research and from the collective experiences of the authors. A holistic approach is described, beginning with developing strong international partnerships built on reciprocity and understanding the diversity of international learning opportunities and development considerations; establishing learning outcomes and assessment; and appreciating current opportunities and challenges. While many of the experiences and examples come from land-grant universities (LGUs), enhancing a global perspective to all types of SA programs at various institutions is vital for preparing future food system leaders to advance sustainable agriculture in the global community. The information in this paper is valuable for SA

^{a,*} *Corresponding author:* 2406 Williams Hall, Department of Crop Science, NC State University, Raleigh, NC 27695 USA; +1-919-513-0085; michelle_schroeder@ncsu.edu

^b 202 Wallace Annex, Department of Human Nutrition, Foods and Exercise, Virginia Tech, Blacksburg, VA 24061 USA; +1-540-231-8768; sfclark@vt.edu

^c 222 Romney Gym, Department of Health & Human Development, Montana State University, Bozeman, MT 59717 USA; +1-406-994-1952; carmen.byker@montana.edu

^d 1301 Fifield Hall, Department of Horticultural Sciences, University of Florida, Gainesville, FL 32611 USA; +1-352-273-4773; zxin@ufl.edu

educators interested in developing new international educational opportunities and also may stimulate further communication about shared pedagogical strategies related to international SA education.

Keywords

agroecology, curriculum, global education, international collaborations, land-grant universities, study abroad, sustainable agriculture

Introduction: Why Is a Global Perspective to SA Education Necessary?

The 21st century poses a number of challenges for the long-term sustainability of agriculture and food systems on both local and international scales. In addition to land-grant universities' (LGUs) core missions of education, discovery, and outreach, there is also an emerging emphasis on the development of global citizens. The National Academy of Sciences (NAS) 2009 report calls for fundamental reform in agricultural education to keep pace with the rapidly changing world (NAS, 2009). A key recommendation states the need to expose the next generation of agriculture students to diverse international opportunities to remain competitive in our changing environment. However, there are philosophical, pedagogical, and practical challenges facing institutions of higher learning as they endeavor to create global citizens. Exactly how we institutionalize purposeful international learning experiences in sustainable agriculture education programs will be pivotal in educating students for global citizenship in our world's food system.

Growing student interest in sustainable agriculture (SA) and the broader food system has resulted in a diversity of undergraduate programs developed nationwide in the last decade, especially at LGUs. On August 3, 2011, in conjunction with the 4th National Sustainable Agriculture Education Association (SAEA) Conference, a pre-conference workshop was held at the University of Kentucky in Lexington that brought SA programs at LGUs together for an extended, focused dialogue. This full-day workshop brought faculty and students together to discuss the "State of Sustainable Agriculture Education at Land-Grant Universities," which focused on sharing the successes and

challenges, and identifying national needs, in SA undergraduate programming at LGUs. Six universities were represented (North Carolina State University, University of California–Davis, University of Kentucky, University of Missouri, University of Vermont, and Virginia Tech), with one to three faculty members and several undergraduate students from participating programs. A number of key areas for SA education were discussed in this workshop, including the emergence, shared successes, and challenges of SA programs at LGUs; the importance of civic and community engagement in SA education; the implicit inclusion of values into SA pedagogy; and the importance of efforts to internationalize SA curriculum. Workshop participants and other contributing authors have transformed the dialogue within each of these critical areas of SA education into other articles in this issue. This particular article will focus on the importance of efforts to internationalize SA education. Many of the authors on this manuscript have developed new SA courses and curricula, and together they have 15 years of collective experience developing and teaching or co-teaching a diversity of SA courses internationally. In this paper, we offer both suggestions from our shared experiences and a synthesis of the literature research in this topic as a way to discuss successful strategies and stimulate further discussion for internationalizing SA education.

While we acknowledge that specific program names may differ (e.g., sustainable agriculture, agroecology, organic agriculture, and food systems), they will be collectively referred to as sustainable agriculture (SA) programs in this paper since they share similar interdisciplinary, systems-based curricula. Many of these SA programs were designed to offer diverse, multidisciplinary curricula that emphasize experiential and hands-on learning, and stimulate critical thinking about real-world food system challenges (Parr, Trexler, Khanna, & Battisti, 2007). While students in these programs are exposed to a diversity of field and classroom experiences, such as farm visits, student farm work, SA research, and community engagement, much of the focus is placed on learning about their local and the U.S. food system (Parr et al., 2007). Much less curriculum emphasis and fewer directed educa-

tional opportunities exist to increase students' awareness of global food systems and their sustainable agricultural challenges.

The National Association of State Universities and Land-Grant Colleges (NASULGU) calls for expanding and strengthening study abroad and other international experiences within institutes of higher education (NASULGC, 2004, 2007). Many SA programs nationwide are new and in the initial curricular development stages, where adding an international course may be viewed as a possible future step after the program has become more established. While we acknowledge challenges to establishing new international activities, we believe that strategically incorporating international learning opportunities into SA curricula would further enhance students' critical thinking skills and reinforce a systems-level perspective. From our experience, international learning opportunities may also challenge agriculture and non-agriculture students to understand the site-appropriate SA practices that balance specific environmental resources, cultural knowledge, and socioeconomic capital. Such transformative international experiences result in more knowledgeable, civically engaged, and globally responsible citizens once students graduate (Lewin, 2009; NASULGC, 2007). When these added-value learning opportunities are integrated across teaching, discovery, and engagement, students as well as faculty may benefit. In this article we assert that international educational opportunities are essential for the development of SA graduates who are prepared to address the complex agricultural and food-system challenges in a growing and changing world.

While international learning experiences are becoming important in higher education and the number of students applying to study-abroad experiences is increasing, the number of agricultural students consistently makes up the smallest percentage of those going abroad, estimated at just 1 percent of the total student study-abroad population, according to data from 2008–2009 (Institute of International Education [IIE], 2010). Study-abroad programs are known for building confidence, increasing problem-solving skills, and creating global awareness for agricultural students (Acker, 1999). Our experiences suggest that

international learning opportunities present multifaceted benefits to SA students for professional development. They help shape global careers and lead to an enhanced worldview, increased self-esteem and self-confidence, more favorable perceptions of intercultural sensitivity, greater cultural awareness, and increased global perspectives, global mindedness, and personal growth (Dwyer & Peters, 2004). Additionally, study-abroad experiences have been shown to improve students' communication skills (VanDerZanden, Haynes, Nonnecke, & Martin, 2007).

While the student benefits from international experiences are becoming evident, we acknowledge that a number of challenges may exist for their development. We have observed that time and effort commitments may be substantial at times for faculty, with significant efforts required to develop international partnerships, design the international itinerary, deal with student recruitment and logistics, and carry out various educational activities internationally. From our experience, it is also important to understand how international learning activities can be assessed and valued toward faculty scholarship and promotion at individual institutions and within specific departments or disciplines.

This paper presents the *raison d'être* for internationalizing SA education and describes diverse ways for developing student-centered international educational opportunities. From our diverse experiences, we discuss key considerations in developing international partnerships and diverse international learning opportunities from study abroad to service-learning, novel approaches for using technology, and establishing learning outcomes and assessment, as well as current challenges and opportunities. While much of our experience and examples are derived from LGUs, enhancing a global perspective to all types of SA programs at various institutions is vital. We believe the information in this paper can be valuable for educators in sustainable agriculture, agroecology, and related food-system programs who are interested in developing new international educational opportunities. It is also expected to stimulate further communication about shared pedagogical strategies related to international SA education.

International Learning Begins with Developing Authentic International Partnerships

Of critical importance for facilitating international SA education experiences is developing collaborative and democratic partnerships among individual faculty, institutions, international organizations, and/or communities. Heffernan and Poole (2005) prioritize three fundamental elements in sustainable international education partnerships: communication, trust, and commitment. International partnerships should rely upon democratic participation that establishes relationships that are mutually beneficial for both student education and the international community (Lewin, 2009). From the beginning of the partnership, clear roles should be defined to ensure that all participants understand the expectations and level of commitment needed for achieving the given purpose of the international SA education program (Tubbeh & Williams, 2010). These collaborative learning environments should embody mutuality and reciprocity and maintain a high degree of accountability between students, faculty, universities, and the international site. Clear communication among international partners and institutions is essential to developing strong, mutually beneficial collaborations (Etling & McGirr, 2005) when working through global partnerships. Moreover, from our experience, greater trust and sustained collaboration among international partners has been realized when the U.S. faculty partner speaks or learns to speak the language of the international partner, especially when abroad. Establishing international partnerships takes time and often involves developing specific agreements among institutions to facilitate partnerships (Etling & McGirr, 2005). While patience and persistence are necessary virtues, we have observed that successful international partnerships often exceed the originally projected benefits for the faculty, students, community, and institutions involved.

There are several avenues for developing international sustainable education partnerships. The United States Department of Agriculture's publication, *Education and Training Opportunities in Sustainable Agriculture*, highlights the diversity of possible partners for universities, including for-profit, nonprofit, and nongovernmental organiza-

tions (NGOs), private entities, and other universities (Thompson, 2009). While funding is a challenge for any program, it is necessary to facilitate partnership development and exchange of faculty and students. An increasing number of private and federal funding agencies endorse collaborative efforts for international training and education initiatives.

Development of and Considerations for International Learning in Sustainable Agriculture

We believe the breadth and depth of international SA learning activities can extend beyond the traditional study-abroad experience. Oftentimes study abroad is perceived as the only means to develop international experiences, when there is a diversity of other approaches to develop global learning opportunities and perspectives, especially for agricultural students (Brooks, Frick & Bruening, 2006). In a survey of 49 LGUs, more than half reported offering a selection of international opportunities with agricultural content and focus (Bruening & Shao, 2005). They also reported having a wide range of formal (international curricula or course-based) and informal (co-curricular) pedagogies available, including the standard study-abroad programs. Furthermore, a number of these international learning experiences included varying degrees of service-learning. Service-learning and engaging with communities while abroad often makes international experiences more meaningful to students and makes long-lasting impact on their professional development (Tonkin & Quiroga, 2004). Building on these general-international learning experiences described in Bruening & Shao (2005), we have developed a series of diverse international experiences and considerations specific for SA education (table 1).

From our observations, a range of programs exist within institutional SA study-abroad and service-learning experiences. Yet it is a current challenge for students and educators to access them, as the offerings are not consistent and there is no all-inclusive platform to conduct a search. We have compiled various examples of successful international SA courses nationwide and described their program characteristics in more depth in

Table 1. Diverse Approaches of International Sustainable Agriculture Educational Experiences and Characteristics

Examples	Characteristics
Exchange programs	Partnering institutions from two different countries establish a reciprocal relationship where students exchange places and develop knowledge and skills by integrating into the host institution's academic program.
In-class activities	Case studies, international guest speakers, and discussions facilitate a cursory understanding of other cultures and can supplement or, if resources are limited, serve as a substitute for international experiences.
Internships	An avenue to gain paid or unpaid work experience abroad and the specialized skill sets needed for employment in the global market.
Service-learning	A pedagogical strategy that incorporates community service, specific learning objectives, and methods for student reflection.
Study abroad	Students travel to a foreign country, often hosted by international higher education institution(s), to study subject matter from a specified academic program for an established period of time (ranging from one week to multiple years).
Video and technology	Courses use interactive technology and videoconferencing to connect students at universities around the world. Topics pertinent to the course subject matter are presented, discussed, and debated virtually. An example of this is the Global Seminar consortium (http://www.globalseminar.org).
Alternative SA work and learning experiences	Some programs include: Agriventure (http://www.agriventure.com) Global Service Corps (http://www.globalservicecorps.org) Living Routes (http://www.livingroutes.org) World-wide Opportunities on Organic Farms (WWOOF; http://www.woof.org)

table 2 (in the Appendix). While this list is not exhaustive, it provides a good representation of international SA courses offered primarily for undergraduate students and taught on a consistent basis. While it is difficult to describe a specific typology of these study-abroad and service-learning experiences, many tend to be shorter (1 to 4 weeks), are offered during the summer or spring break, are taught at an introductory level, and attract students from diverse backgrounds and disciplines. Additionally, a few of these courses are offered collaboratively between and among different U.S. institutions, allowing institutions and collaborating faculty to share expertise, student recruitment, and development efforts. This can benefit students by offering a wider range of international SA experiences and enhanced exposure to diverse perspectives than one institution can offer alone. A central network and working consortium for advertising and communicating about international SA programs is currently lacking and in our opinion would greatly assist faculty sharing curricula

materials, discussing pedagogies, and forming collaborations, in addition to providing a primary site for students to search for these opportunities.

With deliberate consideration about the variety of ways in which SA international education can occur, a faculty member can plan a program that may create opportunities for significant gains in student learning through improving students' understanding of international communities and developing a perspective of the global food system. Although we acknowledge that it may be daunting to develop an international learning experience from scratch, we have developed a number of key considerations for developing successful SA international experiences (table 3). It is important to recognize that many of these development activities may need to take place a year before actually implementing them. While we realize that development may require a substantial investment of time, innovative approaches in international education may improve the quality of undergraduate SA education as well as provide the foundation

Table 3. Key Considerations and Action Items for Faculty in Developing International SA Education Experiences

Key Considerations	Action Items
Realize and research options	Several educational modalities exist; evaluate differences among study-abroad short courses and long courses, exchange programs, and partnerships that rely on technology rather than physical travel (e.g., videoconferencing in the classroom).
Seek mentorship and institutional support	Request guidance from experienced faculty members, students, and study-abroad office.
Develop mutually beneficial partnerships	Focus on building partnerships that advance the objectives of partners, simultaneously achieving student learning outcomes and improving international community food systems.
Make pre-trip visit	A pre-trip site visit is advisable to understand the intricacies and logistics of the program and to provide leadership when guiding students.
Research international agricultural and food system	Working with international partner, research the literature, and develop a list of agriculture and food system topics prior to the international activity. For example, students may become familiar with international agriculturally important products, means of production, markets, food system issues related to sustainability, and the effects of globalization.
Develop educational goals and means of assessment	Before the international activity, develop clear educational goals and means of assessment. Develop activities (e.g., position papers, survey questions, travel journals, student-led discussion, critical thinking questions, Photovoice, video and audio Podcasts, and electronic portfolios) that enhance student learning outcomes, promote reflection before, during, and after the trip, and provide the faculty member with a means to assess student learning.
Recognize cultural differences	During the pre-site visit, through research, and use advice from partner to understand and relay cultural differences in aspects such as food, dress, and language to students. Adequately prepare students with cultural expectations.
Develop budget and funding strategies	Investigate various funding strategies through for-profit, nonprofit, university support, governmental organizations, and scholarships. Develop a course budget that is flexible and accounts for inflation and unexpected occurrences.

for preparing graduates to address our global food system challenges.

Assessment Measures in International Sustainable Agriculture Education

As with the development of any curriculum, clear student learning outcomes, inclusive of assessment strategies, should be developed for any international SA educational activity. A holistic approach to assessment of student learning in international education is paramount, and pedagogical methods should be evaluated for effectiveness, relevance, and impact. In addition to content-specific agricultural knowledge, these international learning experiences may also include additional learning outcomes related to cultural awareness and relativism and the development of a global perspective

on SA practices and food systems. Recently in higher education there has been a growing interest in conducting assessment beyond traditional methods to more effectively assess an institution's success in meeting student learning outcomes, improving how faculty teach, and developing scholarship in teaching and learning (O'Meara, 2005).

From our collective experiences, assessment of learning outcomes in SA international education is enhanced when it is diverse and includes multiple means of student reflection, both formal and informal, to better captures the multidimensional aspects of international learning environments. Providing students multiple methods for reflection over various time periods (before, during, and after) can enhance their intercultural competence and ability to articulate their international experiences

(Williams, 2005). Critical reflection through position papers or survey questions may also be used to assess students' cultural awareness, preconceptions, or content knowledge pre- and post-international activity. Less formal means of reflection, such as travel journals, student-led discussions, and questions of the day, also can be integrated to assess student learning throughout the international activity. Additionally, video and audio podcasts can be used in innovative ways for student assessment, in both formal and informal ways. For example, using Photovoice students can capture photos to document specific assets and issues in the community, discuss resolutions, envision future solutions, and potentially bring findings to political leaders. Photovoice is a qualitative method of reflection utilized in social science research that promotes community development and grassroots action (Wang & Burris, 1997). Lastly, electronic portfolios can be used to foster the integration of theory, action, self-reflection, and assessment by collecting, considering, sharing, and presenting learning outcomes with and to others via a digital medium (Yancey, 2001). Through electronic portfolios, students can chronicle and share their scholastic achievements and experiences using a web-based platform.

Important to all assessments of student learning is designing activities that emphasize reflective thinking, facilitate student inquiry, encourage students to state, analyze, evaluate, and synthesize information, and that challenge students to set and work toward fulfilling learning and assessment goals for SA programs. Activities for SA international experiences are most successful when they emerge from the specific learning outcomes and inform assessment, but also are grounded in varied experiential learning opportunities (Bruening & Shao, 2005) and engagement with diverse international partners, producers, and community members.

Challenges and Opportunities

We believe that incorporating international experiences into SA education can add substantial value to the existing curriculum. Nonetheless, developing these types of SA international learning experiences can pose very real challenges for faculty charged

with establishing them. Below we describe some of the main challenges in developing SA international learning experiences: teaching to diverse audiences, the low participation by agricultural students in international experiences, knowledge of country-specific agricultural and food systems, and faculty reward structures. We also outline some general challenges to developing international learning experiences inherent across disciplines, such as institutional support, travel and safety logistics, and cultural transitions. Within each of these challenges also exist opportunities for innovation; we present a few ideas for these based on the authors' experiences.

Teaching Diverse SA Students Internationally. While domestically based SA programs and courses may attract diverse students, some from agriculture-related majors and backgrounds as well as nontraditional students, the academic diversity among students in international SA experiences may be even greater. From our experiences, greater number of students from humanities, international studies, foreign languages, and social sciences may be attracted to participating in an international SA course. For these students this may be their first agricultural or even natural science course. It may be challenging as an educator to teach an SA course abroad at the right level to keep both students with agriculture or SA backgrounds and nonagricultural backgrounds engaged. The diversity of students and their respective backgrounds, however, can be one of the most powerful assets of a SA international course if designed with this in mind. Students can be encouraged to share their perspectives and experiences with each other before, during, and after the course through student-led discussions, paired and shared learning, and structured group exercises. In the authors' experiences, when this student diversity is treated as an asset, students gain a broader understanding of SA and food systems, in addition to an increased global perspective.

Low Participation by Agricultural Students in International Experiences. Student recruitment is one of the biggest challenges in teaching any international course, and it is a particular challenge to recruit students from agriculture and related majors. As mentioned previously, students

in agriculture-related majors are consistently the smallest percentage of students studying abroad (IIE, 2010). While there may be many reasons for this, agriculture students may be more financially limited; in this case, scholarships can be developed to encourage their participation. In addition, opportunities (e.g., student club presentations and study-abroad seminars) can be structured for peers who previously participated in the international SA course to serve as ambassadors and reach out to these students. They may be more inclined to listen to previous student participants to discuss the personal value of international field experience.

Faculty Knowledge of SA Systems Abroad.

Teaching an international SA course well requires country-specific knowledge of crop and animal management practices and food systems, in addition to the SA content. In addition, it may be difficult to observe specific crop or animal stages or production systems in short courses, depending on the time of year when the course is taught. While all of this country-specific knowledge might seem daunting to a faculty member trying to develop a new course, there are many ways to collaborate with international institutions in-country through team teaching, cross-student exchanges, and site visits suggested by international colleagues. Faculty can research existing memorandums of understanding with international partners in place at their home institutions, and seek out other faculty at their home institution or other institutions that have taught in similar countries. A reconnaissance visit prior to involving students is highly recommended to investigate in-country farm visits, institutional collaborations, activities, and lodging.

Faculty Reward Structure. As observed in the SAEA pre-conference workshop, many of the faculty leading SA programs nationwide are pre-tenured although developing international courses may often be discouraged for junior faculty. One overarching challenge we have observed for many junior faculty revolves around whether SA international education is valued as scholarship. Faculty engaged in international education efforts need structural assurance that their efforts are not neglected by the traditional reward systems of tenure and promotion. It is vital that faculty who are considering developing these SA international

learning experiences understand how their contributions to international education align with promotion and tenure policies at their particular institution.

Literature on academic reward systems concerning faculty pursuits of international learning opportunities is limited (O'Meara, 2005). Expectations for promotion and tenure are often vague concerning the scholarship associated with international pedagogy and can be influenced by academic leadership and by messages sent at the institutional level about what should be valued and rewarded. There should be congruence between faculty priorities and the institutional goals and objectives for promotion. Furthermore, when faculty research initiatives interface in some capacity within the international setting, faculty scholarship may be more readily validated within universities. Currently there is a scarcity of systematically gathered qualitative and quantitative information that assesses the impact of international learning opportunities and study abroad, leaving a prime opportunity for faculty to research and present scholarship on the effectiveness on learning using appropriate assessment methodologies. Within the context of the university frameworks, it is important to strategically engage in dialogue that expands the criteria used to assess research expectations toward more favorable alternative forms of scholarship, including international education (Huber, 2002).

General Challenges to International Learning Experiences. We note that there are many logistical aspects to consider from the perspective of students, faculty, university administrators, and international program site organizers for any type of international program. Multiple challenges may occur before, during, and after return, which may vary depending on the length of travel and the destination. Additional aspects to consider include:

- *Curriculum credit:* Offering academic credit for international experiences varies across institutions and is often generic in description (e.g., independent study, study abroad, or fieldwork). However, when such opportunities are connected to a specific course, they become anchored in authentic pedagogy associated

with assessment of student learning. In addition, a credit-based structure can help validate the experience for students and faculty. The student's academic transcript reflects the international experience and faculty are acknowledged for their scholarship in teaching the course.

- *Management of time-sensitive logistics:* Sufficient lead time is necessary when arranging trips regarding things such as airfare, travel, and medical insurance (required by most universities), travel prophylactic vaccinations, prescription prophylactic medication, and other country-specific matters.
- *Travel finances/program length:* Probably one of the greatest burdens to students is the cost of the study abroad. It can sometimes be the biggest barrier to student recruitment. Additionally, a whole semester or year abroad may be a deterrent for many students as it may disrupt or delay their academic progress toward their degree and subsequently graduation. Many college students need some level of financial assistance to participate. Numerous university offices of international studies offer scholarships or advice on other funding opportunities for international travel, for both faculty and students.
- *Miscellaneous:* Things often beyond our control include flight cancellations, medical emergencies, traveler's sickness, environmental or food allergies, and legal issues. For these reasons and others, significant thought must be given to contingency plans. Many institutions require this. Although there is no generic "road map" for developing or implementing a study-abroad experience, it is advisable to establish some guidelines for every step in the process. We only identify key categories, as the actual nuts and bolts are beyond the scope of this article.

Institutional Support. The quest for achieving global competence seldom addresses the specific steps or process. Ideally, successful internationalization is embedded in an institution's strategic plans and missions (McCarthy, 2007). In addition, it takes leadership and commitment from faculty, staff, students, and administrators. It typi-

cally starts with a faculty member's deep desire to engage and enhance the international perspective for their students. Such faculty leaders can set into motion a cascade of events that ultimately influences institutional support. Below we give suggestions for faculty who question how to get started. Table 3 also provides further insights into building capacity to implement an abroad experience specific for SA.

Since taking responsibility for a study-abroad experience might seem initially daunting, partnering with a seasoned practitioner of international experiential learning is highly recommended. Such mentoring becomes an asset to the novice and a future resource. Just the volume of paperwork required is intimidating and needs oversight, including effective organizational planning skills on the part of the lead faculty. The timing of almost every decision is critical and certainly benefits from someone experienced in this, especially if the program of study involves students and faculty from other universities. Multi-institutional collaborations can be advantageous, but create yet another variable and layer of complexity to the travel equation. Most challenges revolve around logistics, including finances, health and safety concerns, lodging, meals, transportation within the country, reliable on-the-ground contacts, and language and translation. It is critically important to put these details in place well in advance of the actual travel. Campus study-abroad offices may require advanced notice of up to a year for travel to certain countries.

An institutional plan for supporting international learning must resonate with faculty, administrators, and students to be successful. Given the implicit and explicit values to SA international experiences, questions still remain about such opportunities. For example, how do we convince higher-education administrations to embed permanent funding for such SA international curricula? Deal with financial constraints? What are the measurable learning outcomes of a globally competent graduate? How do we engage more faculty members in international research and education activities?

While each institution may be separately struggling with these questions and trying to recruit enough students for the viability of each inter-

national trip, there are many opportunities for collaboration in international learning across institutions abroad and within the U.S. When faculty and institutions collaborate on offering international courses abroad, faculty efforts in advertising, student recruitment, and course logistics can be shared. From our experiences, students can benefit from shared faculty expertise and perspectives, as well as from interactions with other students across institutions.

Language and Cultural Transitions. The distinct learning opportunities that international education provides for students to mature as global citizens also produces specific challenges, especially in relationship to culture shock or transition (Ward, Bochner, & Furnham 2001). Examples of cultural transitioning for students abound in international education experiences, and can include broadening perceptions related to multicultural awareness, ideologies, and cultural norms. Challenges associated with culture shock can be as simple as food, language, currency exchange, and attire, or can be as complex as accepting and understanding foreign gender equality and religious practices. From our own observations, participants returning from an international experience can exhibit unexpected post-trip disequilibrium and discontent. Students express feelings such as “reverse” homesickness, the inability to explain the experience coherently, and relationship changes as ideas and attitude have been influenced by the experience. In the midst of cultural transition, there are various opportunities for students to serve as ambassadors of their international program and encourage other students to engage in international learning. Upon their return, students and faculty alike can become not only spokespersons for dissemination about the experience, but also recruiters for future trips.


Concluding Thoughts

Today, there is much more awareness and demand for international education than ever before, involving partnerships forged by a myriad of stakeholders, including government-funded agencies and foundations, nonprofit organizations, private-sector entities, institutions, and universities. We recognize that there are numerous academics of SA engaging in a variety of multidimensional

international experiences for students and faculty. While these international SA experiences are programmatically varied, there are commonalities and challenges along with rewards and dynamic opportunities for building partnerships between countries and faculty and students from other universities. Furthermore, upon returning both faculty and students have an opportunity to share their experience with the wider university community. This helps to engage the interest of others as a potential recruitment tool, while helping to attract and sustain a core level of interest for future international programs. Independent of educational modality, the forms of international experiences in SA can promote the idea of global citizenship, competence in the global arena, and an understanding of SA and associated practices from a global food system perspective.

The multidisciplinary nature of SA as a discipline lends itself to participatory learning and critical thinking exercises with real-world challenges (Lieblein, Østergaard, & Francis, 2004). LGUs need to be prepared to provide students with the skills and knowledge in SA with an international perspective that is critical to the future of our global food systems. International SA education is especially pertinent to food system learning as the current dominant food system structure relies upon globalized and industrialized techniques. The dominant food system is frequently criticized, stemming from the current negative environmental impacts (Foley et al., 2005) and failure to meet the nutritional needs of existing or future populations (Godfray et al., 2010). These concerns require a global perspective about the effects, varieties, opportunities, and challenges of agriculture types (e.g. sustainable, industrial, and civic) that exist around the world. We believe that shifting to a local, national, *and* international focus in SA education will better prepare students to understand their own responsibilities both in local community-based food systems and as global food citizens. Providing both local and global perspectives in all aspects of SA learning is not just important for SA programs at LGUs, but vital to all SA education programs.

Lastly, we hope this paper provides a platform for further discussion and a larger dialogue on how

to successfully integrate international opportunities in SA education, while also emphasizing its importance. We believe a collaborative working group or consortium among SA educators currently or interested in teaching internationally is a necessary next step to facilitate the development of shared resources and materials, discuss SA content and pedagogical strategies, and develop joint research and key metrics for assessing program impacts. 

References

- Acker, D. (1999). Improving the quality of higher education in agriculture globally in the 21st century: Constraints and opportunities. *Journal of International Agricultural and Extension Education*, 6(2), 47–53.
- Brooks, S. E., Frick, M., & Bruening, T. H. (2006). How are land grant institutions internationalizing undergraduate agriculture students? *Journal of International Agricultural and Extension Education*, 13(3), 91–102.
- Bruening, T. H., & Shao, X. (2005). What should be included in an international agriculture undergraduate course? *Journal of International Agricultural and Extension Education*, 12(1), 47–54.
- Dwyer, M. M., & Peters, C. K. (2004). The benefits of study abroad. *Transitions Abroad*, 27(5), 56–57.
- Etling, A., & McGirr, M. (2005). Issues and procedures in forging international university partnerships. *Journal of International Agricultural and Extension Education*, 12(2), 15–21.
- Foley, J. A., DeFries, R., Asner, G. P., Barford, C., Bonan, G., Carpenter, S. R., ... Snyder, P. K. (2005). Global consequences of land use. *Science*, 309(5734), 570–574.
<http://dx.doi.org/10.1126/science.1111772>
- Godfray, H. C. J., Beddington, J. R., Crute, I. R., Haddad, L., Lawrence, D., Muir, ... Toulmin, C. (2010). Food security: The challenge of feeding 9 billion people. *Science*, 327(5967), 812–818.
<http://dx.doi.org/10.1126/science.1185383>
- Heffernan, T., & Poole, D. (2005). In search of “the vibe”: Creating effective international education partnerships. *Higher Education*, 50(2), 233–245.
<http://dx.doi.org/10.1007/s10734-004-6352-2>
- Huber, M. T. (2002). Faculty evaluation and the development of academic careers. *New Directions for Institutional Research*, 114, 73–84.
<http://dx.doi.org/10.1002/ir.48>
- Institute of International Education [IIE]. (2010). *Open doors 2010 report on international education exchange*. New York: Author. Retrieved from <http://www.iie.org/opendoors>
- Lewin, R. (2009). Transforming the study abroad experience into a collective priority. *American Association of Colleges & Universities Peer Review*, 11, 8–11.
- Lieblein, G., Østergaard, E., & Francis, C. (2004). Becoming an agroecologist through action education. *International Journal of Agricultural Sustainability*, 2(3), 147–153.
<http://dx.doi.org/10.1080/14735903.2004.9684574>
- McCarthy, J. S. (2007). A roadmap for creating the global campus. *The Chronicle of Higher Education*, 53(44), B12.
- National Research Council of the National Academies [NRC]; Division on Earth and Life Studies; Board on Agriculture and Natural Resources Board on Life Sciences. (2009). *Transforming agricultural education for a changing world*. Washington, D.C.: The National Academies Press.
- National Association of State Universities and Land Grant Colleges [NASULGC]. (2004). *A call to leadership: The presidential role in internationalizing the university*. Washington, D.C.: Author.
- National Association of State Universities and Land Grant Colleges [NASULGC]. (2007). *A national action agenda for internationalizing higher education*. Washington, D.C.: Author.
- O'Meara, K. A. (2005). Encouraging multiple forms of scholarship in faculty reward systems: Does it make a difference? *Research in Higher Education*, 46(5), 479–510.
<http://dx.doi.org/10.1007/s11162-005-3362-6>
- Parr, D., Trexler, C. J., Khanna, N. R., & Battisti, B. T. (2007). Designing sustainable agriculture education: Academics' suggestions for an undergraduate curriculum at a land grant university. *Agriculture and Human Values*, 24(4), 523–533.
<http://dx.doi.org/10.1007/s10460-007-9084-y>
- Thompson, B. (2009, June). *Educational and training opportunities in sustainable agriculture* (19th ed.). Retrieved from USDA National Agricultural Library website: <http://www.nal.usda.gov/afsic/pubs/edtr/EDTRIntA.shtml>
- Tonkin, H., & Quiroga, D. (2004). A qualitative approach to the assessment of international service-learning. *Frontiers: The Interdisciplinary Journal of Study Abroad*, 10, 131–149.

-
- Tubbeh, L., & Williams, J. (2010, Summer). Framing issues of international education. *New Directions for Higher Education*, 150, 7–16.
<http://dx.doi.org/10.1002/he.386>
- VanDerZanden, A. M., Haynes, C., Nonnecke, G. R., & Martin, R. (2007). Attitudes and perceptions of participants in a horticulture study abroad course at Iowa State University. *HortTechnology*, 17, 128–132.
- Wang, C., & Burris, M. A. (1997). Photovoice: Concept, methodology, and use for participatory needs assessment. *Health Education & Behavior*, 24(3), 369–387.
<http://dx.doi.org/10.1177/109019819702400309>
- Ward, C., Bochner, S., & Furnham, A. (2001). *The psychology of culture shock*. (2nd ed.). East Sussex: Routledge.
- Williams, T. R. (2005). Exploring the impact of study abroad on students' intercultural communication skills: Adaptability and sensitivity. *Journal of Studies in International Education*, 9(4), 356–371.
<http://dx.doi.org/10.1177/1028315305277681>
- Yancey, K. B. (2001). Digitized student portfolios. In B. Cambridge (Ed.), *Electronic portfolios: Emerging practices in student, faculty, and institutional learning* (pp. 15–30). Sterling, Virginia: Stylus.

Appendix

Table 2. Highlighted Examples of International Sustainable Agriculture Education Courses with Program Descriptors

Lead institution(s) responsible for developing and offering the course are listed below the course name.

International SA course	Location	SA Content	Activities	Program Length	Average Number of Participants	International or NGO Collaborations?	Service-Learning Activities?
Oaxaca, Mexico Semester Abroad Program (University of Vermont)	Mexico, Oaxaca	Tropical farming and gardening, food, culture, health	Visits to farms, hands on experiential learning, interviews with practitioners	4 months	12 undergraduate students	Unitierra, Grupedesac, Ejutla	Yes, work with partners to install school and community gardens
Organic Production and Marketing in Spain (University of Florida)	Spain, Madrid and Valencia	Organic agriculture, regulation, and marketing	Visits to farms, markets, universities, interaction with faculty, students, compare organic agriculture between U.S. and Europe	1 week	6–10 undergraduate students		No
Season Extension Horticulture in China (Multi-institutional collaboration among Mississippi State University, Texas A&M University, University of Arkansas, and University of Florida)	China, various locations	Season extension, production, and marketing	Visits to farms, research institutes, universities, and businesses; interaction with faculty, researchers, and students	3 weeks	10 undergraduate and graduate students		No
Study Tour in Honduras (Virginia Tech)	Honduras, Tegucigalpa, Trinidad, Copan, Copantle village	Community food systems, food security, food sovereignty, sustainable development	Multiple Heifer projects visits; (Sustainable Food Systems; Food Sovereignty and Biodiversity; Farm School)	7–10 days, with a domestic based semester course	10–15 undergraduate and graduate students	Heifer International, partner in course offering	Yes, various farm and garden school project; land management projects; build animal facilities
Sustainability of Tropical Agroecosystems (Multi-institutional collaboration between North Carolina State University and University of Georgia)	Costa Rica, countrywide	Introductory sustainable agriculture, tropical crop and animal production, processing and marketing, conservation of natural resources	Visits to farms, businesses, national parks universities, interactions with faculty, researchers and students, home stays, group projects developing farm level indicators of sustainability	3 weeks	12–20 undergraduate and graduate students	Site visits with EARTH, CATIE, UCR	Yes, few, work with EARTH and surrounding community to help build a biodigester, plant press

Sustainable Food, Environment & Social Systems in Australia (Michigan State University)	Australia, south and eastern coasts	Introductory sustainability and human impacts on environment in the context of food	Visits to farms, agribusinesses, research and processing facilities; field work, independent research project	4 weeks, with 6–10 domestic-based sessions	15–25 undergraduate students	Collaborate with several universities, companies, and research facilities, varies year to year	Yes, 2–3 projects each year; teach at school, weeding and planting in the rainforest, or wetland regeneration.
-------------------------------------------------------------------------------------------------------	-------------------------------------	-------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------	--------------------------------------------	------------------------------	------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------

The Learning Gardens Laboratory: Teaching sustainability and developing sustainable food systems through unique partnerships

Heather Burns,^{a,*} Portland State University

Weston Miller,^b Oregon State University

Submitted 28 November 2011 / Revised 3 February 2012 and 2 March 2012 / Accepted 2 March 2012 /
Published online 11 May 2012

Citation: Burns, H., & Miller, W. (2012). The Learning Gardens Laboratory: Teaching sustainability and developing sustainable food systems through unique partnerships. *Journal of Agriculture, Food Systems, and Community Development*, 2(3), 69–78. <http://dx.doi.org/10.5304/jafscd.2012.023.003>

Copyright © 2012 by New Leaf Associates, Inc.

Abstract

Garden-based education programs at the Learning Gardens Laboratory (LGL) in Portland, Oregon, have been developed in a partnership between Portland State University and Oregon State University in order to advance the development of sustainable food systems and sustainability education. Learning gardens serve as rich sustainability learning sites due to their ecological and socio-cultural benefits, and provide a hands-on way for

students to engage in interconnected issues and begin to participate in solving complex problems. At LGL there is an understanding that developing sustainable food systems also requires teaching and learning practices that reflect the goals of sustainability education. Our primary pedagogical influences are drawn from permaculture, deep ecology, ecological design, and sustainability pedagogy. A number of pedagogical principles serve as a framework for teaching sustainability holistically at LGL, including: (1) Interdisciplinary learning; (2) place-based learning; (3) active and engaged learning; (4) relationship-building; (5) multiple perspectives; and (6) systems thinking and interconnectedness. These pedagogical principles are discussed in relationship to the educational programs taking place at the Learning Gardens Lab, and we highlight two successful programs developed by our universities: the Beginning Urban Farming Apprenticeship program, and the Lane Middle School Garden-Based Education program. We also address learning that has arisen from key challenges that we face at LGL.

^{a,*} *Corresponding author:* Heather Burns, Assistant Professor and Coordinator–Leadership for Sustainability Education; Faculty Coordinator, Learning Gardens Laboratory; Educational Leadership & Policy, Graduate School of Education; Portland State University; P.O. Box 751; Portland OR 97207 USA; +1-503-725-8252; hburns@pdx.edu

^b Weston Miller, Community and Urban Horticulturist; Coordinator, Learning Gardens Laboratory; Oregon State University Extension Service, Portland Metro Region; 200 Warner-Milne Road; Oregon City, OR 97045 USA; +1-503-706-9193; weston.miller@oregonstate.edu; <http://extension.oregonstate.edu/mg/metro/>

Keywords

garden-based education, middle school garden-based education, sustainability education, sustainability pedagogy, sustainable food systems, university partnerships, urban farming apprenticeship

Introduction

The sound of a chickadee calls out the hour from the bird clock on the greenhouse wall. We chuckle at this quirky reminder of the time as we wrap up our biweekly team meeting at the Learning Gardens Lab (LGL) in Portland, Oregon. At the table are faculty and graduate students from the Education and Psychology departments at Portland State University, a horticulture educator from Oregon State University (OSU) Extension Service, several Master Gardener volunteers, staff from the city of Portland's Community Gardens program, and principals from two adjacent public schools. This team represents the unique partnerships that provide the foundation of success for the Learning Gardens Laboratory, a four-acre (1.6 hectare) garden-based education site. Two universities, Portland State University (a large urban university) and Oregon State University (a large land grant university), have developed a variety of educational programs at this urban learning garden to advance the development of sustainable food systems and sustainability education. In partnership, Portland State University and Oregon State University are finding success in educating a wide range of learners in ways that cultivate relationships, a sense of place, and civic engagement for a more sustainable future.

The purpose of this article is to provide an extensive description of one example of a university-based learning garden that is rooted in partnerships. This article begins with a foundational discussion of some of the ways in which urban learning gardens serve as valuable sustainability learning sites due to their ecological and sociocultural benefits. Next, the paper describes the mission and purpose of the Learning Gardens Lab, and the pedagogical principles that make this university partnership site a sustainability education center. We then describe the educational programs taking place at the Learning Gardens Lab and

highlight two successful programs developed by our universities. Finally, we discuss some of the challenges of this garden education site, and what we have learned from these challenges.

Learning Gardens and Sustainability Education

As the rate of urbanization continues to rise and the ecological challenges of urbanization become more pressing, urban agriculture is on the forefront of sustainable solutions at many universities. University learning gardens not only contribute to the development of sustainable food systems (Gaylie, 2009), but serve as rich sites at which university students, schoolchildren, and community members can participate in sustainability education. According to Nolet (2009), sustainability education involves learning "knowledge, skills, and values that inform an individual's mental models and day-to-day behaviors. It entails more than simply knowing things about the environment, economics, or equity and justice issues, but rather involves a willingness and ability to engage intellectually and personally with the tensions that are created by the interconnectedness of these systems" (p. 421). Learning gardens ameliorate the ecological and sociocultural challenges of unsustainable urbanization in a number of integrated ways and thus provide a hands-on way to engage in interconnected sustainability issues and to begin to participate in solving complex problems.

For example, students learn how to produce and prepare locally grown organic produce, and come to understand the value and benefits of small-scale regional and urban production that can reduce some of the reliance on food that is produced at great distances from urban areas. At garden sites, learners recognize that sustainable urban farms and gardens produce less chemical pollution, and because they require less fossil energy inputs to produce and transport food, less pollution and less carbon dioxide emissions are produced overall (Pimentel, Hepperly, Hanson, Douds, & Seidel, 2005). Learners experience and participate in what Rees (1997) refers to as "local cyclically integrated ecological production systems" (para. 3). Participating in integrated ecological systems promotes learning about sustainability in

ways that are systemic and place-based. Participating in an urban learning garden also creates direct spatial and psychological connection to the land that supports us. This connection is vital because as Rees (1997) notes, “to many urban dwellers, even food, that most vital of basic needs, is increasingly dissociated from its origins in the sun and soil” (para. 5). Creating ways for learners to reconnect directly to their food source is essential for developing sustainability values such as relationships and interconnectedness.

From learning garden sites, students can also learn values such as reuse, conservation, and care of the earth by experiencing how these sites benefit urban areas by reducing runoff, improving water usage and retention (Pimentel et al., 2005), and recycling organic waste material (Altieri, Companioni, Cañizares, Murphy, Rosset, Bourque, & Nicholls, 1999). Learning may also focus on how sustainable farms and gardens can improve urban soil and water quality through careful soil management, crop rotation, and by preventing soil erosion with increased ground cover (Pimentel et al., 2005). Furthermore, sustainability concepts such as the value of diversity and interconnection can be understood by examining how sustainable urban farms and gardens help to augment biodiversity both below and above the ground, resulting in increased microbial activity and respiration of soil, and more habitat for seed dispersers and pollinators (Pimentel et al., 2005), particularly if hedgerows and other nonfood plants are incorporated into a farm or garden site (Montri, 2005).

University learning gardens also assist students in exploring sociocultural benefits such as the development of local economic networks, community food security, and public health (Barndt, 2002; Gaylie, 2009; Lappé & Lappé, 2002). Additionally, learners may discover how the ethnobotanical diversity that can be created through sustainable farming and gardening contributes to the revitalization of traditional cultural foods and medicinal plants, including the restoration of native plants for food and habitat (Altieri et al., 1999; Corlett, Dean, & Grivetti, 2003). With such productive learning opportunities, it is perhaps not surprising that programs such as LGL are being developed by universities as

unique locations from which to teach sustainability knowledge, skills, and values.

The Learning Gardens Laboratory (LGL)

The LGL was founded in 2005 by several faculty members from Portland State University’s Leadership for Sustainability Education (LSE) program in partnership with Portland Public Schools, the city of Portland’s Parks and Recreation, and Oregon State University Extension Service. From the beginning, the vision for the Learning Gardens Lab was to create a living laboratory for sustainable food systems based on the hands-on application of organic gardening. Importance was placed on developing partnerships with local schools and the local community in order to increase food security and teach sustainability in a holistic way.

The site of the LGL is unique in that it is located on a 12-acre (4.9-hectare) piece of land that has never been developed. The LGL is located on 4 acres (1.6 hectares) of this site, and utilizes this space for annual garden beds, small-scale farm plots, perennial hedgerows, an outdoor classroom, a native plant garden, and a permaculture garden with a diversity of edible fruiting shrubs and herbs. The mission of the LGL is to support academic achievement, leadership development, and a local sustainable food system by providing multicultural, interdisciplinary, intergenerational, and experiential garden-based education for public school students and their families, university students, and community members. Recognizing its unique location from which to teach sustainability knowledge, skills and values, the LGL is grounded in pedagogical principles that form the foundation of its sustainability education work. This pedagogical framework provides context for the partnerships and the educational programming that takes place at LGL.

Sustainability Pedagogy at the Learning Gardens Laboratory

Underlying all of the educational programs at LGL is an understanding that developing sustainable systems requires teaching and learning practices that reflect the goals of sustainability education. Sustainability education aims to reconnect learners to each other and the land, and to prepare learners

to participate in positive changes for local communities and ecosystems. Sustainability pedagogy, therefore, must shift toward systemic, connective, and ecological ways of learning (Sterling, 2002) and toward problem-based and collaborative activities that focus on learning through inquiry, experience, and reflection (Moore, 2005). At LGL, our primary pedagogical influences are drawn from permaculture, deep ecology, ecological design, and sustainability pedagogy (Burns, 2011; Capra, 2003; Holmgren, 2002; Orr, 2004; Sterling, 2002).

The discussion of the following six principles provides a pedagogical framework for garden-based education at LGL that is focused on teaching sustainability in a holistic way to create sustainable leaders and sustainable food systems. These pedagogical principles include: (1) Interdisciplinary learning; (2) place-based learning; (3) active and engaged learning; (4) relationship building; (5) multiple perspectives; and (6) systems thinking and interconnectedness.

Interdisciplinary learning is the first essential principle for learning sustainability at LGL. Sustainability pedagogy emphasizes holistic, nonfragmented, and interdisciplinary learning that reveals the relationships, patterns, and dynamics among the biological and cultural dimensions of life (Burns, 2011). Through learning that is interdisciplinary, learners come to know in ways that honor the holism of life, rather than learning to think and know in ways that are fragmented and divided (Sterling, 2002). Learning in a nonfragmented, holistic and interdisciplinary way is essential for those who are developing sustainable systems, as sustainability problems cannot be addressed by a single dimension (Second Nature, 2012). Rather, sustainability issues, like community food systems, are complex, layered, and must be addressed in an interdisciplinary way. At LGL, learning about food systems includes learning about relationships between science, math, geography, politics, economics, and cultural studies.

A key element of **place-based learning** at the LGL is following the seasons and ecological cycles of what is happening on site, day to day. The study of place is essential because it reeducates people in the art of living well where they are, and to be an

inhabitant of a place from which an organic, reciprocal relationship with place can grow (Orr, 1992). Orr describes places as laboratories where the diversity and complexity of social and natural processes are highlighted. He argues, “Knowledge of a place — where you are and where you come from — is intertwined with knowledge of who you are. Landscape, in other words, shapes mindscape” (Orr, 1992, p. 130). Place-based education helps learners understand who they are, to value the places where they live, and thus to value themselves within that place. An ethic of care and responsibility with respect to place is key to sustainability (Burns, 2009a). Creating sustainable food systems requires that learners value their community, and the land that has the potential to sustain life in that community. In higher education, it is especially important to bring visibility to conceptual ideas, as can be done in the learning garden, highlighting our connection to the earth and each other (Gaylie, 2009). This heightened connection is important for helping learners understand how they can be involved in making sustainable change.

Active and engaged learning is another important aspect of sustainability education at LGL. Sustainability pedagogy is inherently focused on change, and making change requires engagement with one’s self, with others, and with places. Within a sustainability paradigm, change is viewed as finding new ways of living and working so that human systems are in harmony and balance with ecological systems. This change requires an active and experiential learning process that will prepare students to take action for sustainable change (Burns, 2009b). Experiential and participatory learning is empowering; it not only creates a sense of ownership and responsibility, but also helps learners build the capacity and power to confront the sometimes overwhelming problems posed by sustainability issues (Serrano, 2000). When learners are actively engaged in learning new skills and gaining new knowledge, they are more likely to care about what they are learning. As learners participate in sustainable food systems at LGL, they learn skills to actively create change. They plant seeds, not only for the vegetables they will care for and

harvest, but also for changes in the way they think about food and its value to the community.

Relationship building is another essential pedagogical principle at LGL. Learning at LGL places emphasis on building relationships between learners, and learners and educators, and between everybody and the land. Wheatley (2006) argues for the importance of this focus saying, “Relationships are not just interesting...they are *all* there is to reality” (p. 34). Focusing on relationships as the basis for all life and learning puts less emphasis on learning “objective facts” and focuses more on learning “dynamic patterns [that] continually change” (Capra, 1983, p. 91). Enhanced relationships among students promote a sense of community, belonging, and purpose (Lange, 2009), while an enhanced relationship with one’s bioregion can lead to increased stewardship and living appropriately in that place (Berg, 2005). If this is the case, then developing sustainable food systems must emphasize relationship building and caring for the land and each other. At LGL, relationship building involves learning in small, supportive groups and learning in relationship with the land and the plants and animals on site.

Multiple perspectives are needed to understand complex sustainability problems, interpret information, and identify alternative solutions, and thus are also a key pedagogical principle at LGL. Multiple perspectives are valued within student groups, where diverse learners provide unique and underrepresented perspectives. For example, public school students from diverse cultural backgrounds are invited to share their experiences and understanding of growing and preparing food as a regular part of their garden lessons. University students gain multiple perspectives from guest speakers who share their experiences working within local food systems in various ways. Dresner and Seamans Blatner (2006) point out that problems possess multiple solutions and multiple ways to evaluate possible solutions, and so require students to engage in understanding problems from a variety of perspectives. Including a variety of less-heard perspectives, including intergenerational, multicultural, local, and ecological perspectives, is crucial to the process of understanding

local sustainability issues (Second Nature, 2012) such as sustainable food systems.

Systems thinking and interconnectedness are also an essential pedagogical principle at the LGL. By learning systemically, students are able to understand and address complex sustainability problems holistically and to develop personal connections to the places in which their biological, social, and economic lives are grounded (Burns, 2011). Understanding that we, humans and nonhumans, are all connected and interrelated is critical to developing holistic systems that reflect this interconnectedness. Gaylie (2009) notes that in a garden, learning takes place in “the interchangeable dynamic between student, teacher, community, context, and unknown elements of nature” (p. 63). Developing food systems that are truly sustainable will require thinking and acting with an understanding of systems in which everything is interrelated. Students at LGL don’t just learn how to grow vegetables, but come to understand the ecological cycles necessary to grow food, and the economic, social, and political systems that support or inhibit sustainable food systems.

These six pedagogical principles form the foundation of educational work at the LGL. As a leadership team, we are all continuously engaged in sustainability teaching and learning, and recognize these principles as important elements not just of garden-based pedagogy, but also of program development and management.

Educational Programming at the Learning Gardens Laboratory: Overview

The LGL seeks to be an educational resource for the local neighborhood and community. To address the needs of its diverse low-income neighborhood in which sustainable food options are very limited, the Lane Family Garden Program was developed. Graduate students from the Leadership for Sustainability Education (LSE) program at Portland State University coordinate the Lane Family Garden, a garden area that currently hosts a dozen low-income neighborhood families who are learning to grow their own food. Coordinators help families prepare land, plant seeds and starts, maintain their plot, and harvest vegetables. Each family gardener is paired with an

Oregon State University Master Gardener mentor, who can help answer questions and provide support along the way. The teaching and learning that take place within this program are highly focused on relationship building, providing participants with opportunities to get to know each other, to work together to grow food, and to support each other's learning process. This is done through active and engaged learning opportunities, such as participatory workshops and mentoring, and through social opportunities such as potlucks, work parties, and an online forum. Educational workshops include topics such as vermiculture and cooking with harvested vegetables. By offering plots only to families in the local neighborhood, we are focusing on developing strong connections to place and community. Families who work together in the Lane Family Garden are developing deeper relationships to the place where they live by understanding what grows in this particular place and how to cultivate their own food through the seasons. They are also developing closer relationships with their neighbors, many of whom are immigrant families with their own rich history and stories of farming and gardening.

In addition to the family garden program, LGL addresses community food security by donating thousands of pounds of fresh, organic produce to the local community. University students, Master Gardeners, and other volunteers harvest produce from LGL and deliver it to local food banks and schools, where it is distributed to families who need it. Over 1,500 lbs. (680 kg) of fresh produce from LGL was donated in 2011.

The LGL also hosts an average of eight senior capstone service-learning classes per year in partnership with Portland State University. These courses include Environmental Education through a Native American Lens, Sustainable Food Systems, and Learning Gardens and Civic Affairs. Portland State University capstone courses provide opportunities for university students to participate in a culminating interdisciplinary service-learning project in partnership with a community organization. At LGL, capstone students contribute significantly to developing and maintaining the site, while learning about sustainable gardening and food systems. The capstone coordinator, a PSU

graduate student in the Leadership for Sustainability Education Program, works closely with the capstone instructors and students to develop meaningful learning projects. The pedagogy at work in these courses focuses heavily on active and engaged learning, as these capstone courses are service-learning courses. Service learning, due to its participatory and experiential nature with goals of civic engagement and leadership, serves as an excellent application of sustainability pedagogy (Burns, 2009b). Service learning integrates meaningful community service with instruction and reflection, and serves to enhance both the learners and the service site. At LGL, the service learning that takes place is interdisciplinary, active, and engaged, and focuses on systemic solutions based on multiple perspectives. Capstone students work with LGL staff and community members to complete service projects, which have included the development of a new compost system, a craft and medicinal garden, educational materials, a neighborhood survey, LGL promotional brochures, and educational events. One of the capstone instructors also maintains a large garden plot at LGL where her students plant, tend, and harvest produce through the seasons, nurturing their connection to the land and to place.

In addition to these programs, Oregon State University's Extension Service provides horticulture training and mentoring for "Garden Works," which is part of the Community Transition Program through Portland Public Schools. This program offers life skills and business training for people ages 18 to 21 with a variety of physical, developmental, and learning challenges. Cut flowers such as tulips and dahlias are grown on-site, and students work with staff to arrange the flowers and deliver bouquets by bicycle to local businesses as part of a student-run microbusiness. Additionally, OSU Extension staff oversee a Master Gardener demonstration garden on site, which provides hands-on training opportunities for OSU volunteers and workshops for the general public. Both these programs rely heavily on active, engaged and interdisciplinary learning to teach gardening skills. Additionally, the importance of multiple perspectives is evident in the inclusion of learners' voices and input in the Community

Transitions Program, where students are the driving force in making decisions about developing and running their small garden-driven business. At the Master Gardener demonstration garden, gardeners of all ages and backgrounds have a voice in both teaching and learning as they work together to grow organic produce.

Each year the LGL also hosts a number of events that serve as educational opportunities for the community at large and typically include an Earth Day Festival in April and a Harvest Festival in October. These events offer educational workshops by community experts, music, food, tours, and demonstrations. They serve as ways to bring the local community together to build relationships and to share our vision of holistic, systemic sustainability education and sustainable food systems.

Highlighting Success: Beginning Urban Farming Apprenticeship Program and Lane Middle School Garden-Based Education Program

Beyond these ongoing educational programs and events at LGL, Portland State University and Oregon State University Extension Service have found success in two innovative programs, the Beginning Urban Farming Apprenticeship Program (BUFA) and the Lane Middle School Garden-based Education Program.

Beginning Urban Farming Apprenticeship (BUFA)

The Beginning Urban Farming Apprenticeship (BUFA) program is a partnership between OSU Extension Service and Multnomah County designed to provide in-depth and comprehensive training in urban farming and sustainable farming methods with research-based information. The overarching goal of BUFA is to empower participants to responsibly manage soil, water, human, and financial resources to grow food and other value-added products in urban and peri-urban settings as part of both for-profit businesses and community-based organizations.

This program was piloted in 2011 using the LGL site as one of our hands-on vehicles for education. Through formal classes, hands-on training, field trips, online learning, and supervised

apprenticeships, BUFA prepares students to produce and market fresh vegetables, fruits, grains, cut flowers, and other value-added products using organic methods. Participants also learn the knowledge and skills needed to design, install, and manage farm and community landscape infrastructure in urban and peri-urban settings. The BUFA program builds participants' knowledge, skill base, and confidence in small-scale farming and farm business management in three ways: (1) a comprehensive curriculum in urban farming that includes classes, field trainings, field trips, and an online learning platform; (2) a supervised apprenticeship to "learn by doing" at the LGL and other sites; and (3) farm business planning using OSU's established *Growing Farms: Successful Whole Farm Management Workshop Series*.

Course topics for BUFA are based on university research and include soil management (including fertilizers, compost, mulch, and cover crops); intensive vegetable production using hand and small power tools; berry and fruit-tree production and edible landscaping; ecological landscape management (including native and ornamental plants); organic Integrated Pest Management (IPM), with special emphasis on weed control; farm and landscape infrastructure (including irrigation, materials choices, and installation); and farm business planning and marketing.

The pilot of the BUFA program trained 20 new urban farmers. The curriculum emphasized how small-scale organic farming relies on an understanding of systems and interconnected relationships, and apprenticeships provided farming education through active and engaged learning.

Lane Middle School Garden-Based Education

One of the longest running programs at LGL is the garden-based education program with Lane Middle School, located across the street from LGL. While garden-based education programs are becoming more popular for kindergarten-through-fifth-grade programs, fewer examples of successful middle school garden-based education programs exist. The LGL middle school garden-based education program is thus an interesting example of how garden-based education can be applied to middle

schools. LGL Garden Educators, who are graduate students enrolled in Portland State University's Leadership for Sustainability Education Program, develop and facilitate garden-based curriculum for Lane Middle School students three days per week during the school year. Over 150 students from diverse racial, cultural, and socioeconomic backgrounds receive instruction each week. The proximity of Lane Middle School allows sixth graders to come to LGL once a week during their science periods. Garden Educators collaborate with science teachers to integrate key science concepts into the sustainability curriculum.

For the last four years, a team of researchers from Portland State University's psychology department has been conducting ongoing quantitative research about this partnership between the Leadership for Sustainability Education program (LSE) and Lane Middle School, focusing on how engaged participation at the LGL affects middle school students' motivation and achievement in school. This team has found that middle school students who are more engaged in the Learning Gardens perform better in school, (Skinner, Chi, & the Learning-Gardens Educational Assessment Group, 2011). Additionally, students' engagement at the LGL was connected to more engagement in science and in school in general as well as to their academic self-perceptions, including a sense of relatedness to school, perceived competence, intrinsic motivation, and autonomy orientation. These findings are especially important for the students in this study, who are at risk for poor school performance due to their socioeconomic, minority, and/or immigrant status (Skinner et al., 2011). This quantitative study on garden-based education is the only one of its kind in the United States and highlights the success of LGL's sustainability pedagogy.

Lessons in the garden are guided by the seasons of the place so that students learn about natural cycles and become more connected to the place where they live. Learning takes place in small groups, which enhances relationship building and provides increased opportunities for hands-on active learning. Garden-based education is connected to science standards, but also includes learning about nutrition, cultural applications of

food and gardening, writing, and systems thinking. Students are encouraged to share their own stories and understanding of food, and participate in planning, planting, growing, and harvesting food from their own garden plots, which they manage in small groups. Students learn about soil, compost, plant relationships, pollinators, and growing vegetables. When they harvest and cook what they have grown, this interconnected learning touches their lives in a most delicious way.

Challenges and Key Learning

While the LGL has enjoyed much success, it has not been without significant challenges. Several key and interrelated challenges include coordinating partnerships and managing programs with a mostly volunteer team, and the fiscal sustainability of the site. The LGL has a significant number of partnerships and ongoing garden-education programs, all of which need to be managed and require attention for ongoing development. Since the LGL university co-coordinators have a limited amount of paid time to work at this site, most of the programs rely on coordination by graduate student interns who are for the most part unpaid. The graduate student staff members (8 per year) have been committed, enthusiastic, and creative in their work at LGL. Still, these graduate students can typically only commit one to two years to an internship (five to 10 hours per week) while pursuing their degrees. Unpaid internships also create a financial burden for some students and limit their availability at LGL. When students graduate or move on, inevitably much of their experience and knowledge of LGL goes with them. The LGL coordinators must then recruit, hire, and train new staff who are unfamiliar with the site. Some of the issues related to these transitions have been mitigated by creating a system of overlapping positions, so that less experienced staff start out working with more experienced staff. We have also discovered that clearly differentiated job descriptions, staff training sessions, and ongoing opportunities for professional development are all important for smooth transitions. However, staff transitions and funding for staffing remains a significant challenge at LGL.

Managing multiple partnerships at LGL also means that we are always juggling multiple pro-


grams with a variety of learning goals and a diversity of learners. In addition, we are continually sharing resources on site (e.g., greenhouse space, tools, compost, and irrigation equipment). We have learned that successful partnerships require ongoing relationship building and pathways for communication in order to avoid frustrations and to keep the garden running smoothly. Holding regular team meetings with LGL staff and site partners is one way that we have attempted to mitigate communication issues. We have learned that without these meetings, relationships sometimes become strained and communication can falter. At these meetings we get to know one another, celebrate successes and birthdays, share key learning, and discuss our challenges and the needs of the site. We actively cultivate a culture of learning from one another and coordinating our efforts, what permaculture refers to as “stacking functions.” We encourage all staff and partners to engage in ongoing communication via phone and email between meetings as needed.

Fiscal sustainability has also been an ongoing issue, as the LGL partners are all public institutions with limited funding. The LGL has traditionally been supported through grants, donations, and university funding. However, as budgets get squeezed, we must continually justify our garden-based education work and look for new funding sources. We have learned that highlighting LGL successes and building our reputation is an important aspect of our work, helping to generate goodwill and revenue. Research partnerships within the university have also been instrumental in generating fiscal support for garden-based education, as the site is increasingly seen as a laboratory for both valuable research and educational training. Lastly, we have begun developing revenue-generating programs such as BUFA at the site that can help to offset the gaps in university and grant funding.

Conclusion

The Learning Garden Lab’s variety of educational programs contribute to the development of a sustainable urban food system. Through its unique partnerships, LGL reaches schoolchildren, student entrepreneurs, aspiring farmers, neighborhood

families, university students, and the general public. With our guiding principles of sustainability pedagogy, we are seeking to educate this wide range of learners in ways that encourage the development of knowledge, skills and values that contribute to a sustainable future. At the site, we are developing a culture that values holistic, interconnected, and active learning, as well as a diversity of relationships with place and each other. As we begin to shift toward sustainability teaching and learning that is inclusive and interconnected, we see the depth of understanding increasing. Although LGL is a work in progress, we are learning from our challenges.

The LGL provides of case study of how university and community partnerships can promote both sustainability education and sustainable food systems through garden-based educational programming. As more universities turn to sustainable urban agriculture programs to educate for sustainability in both theory and practice, developing both strong partnerships and integrated sustainability pedagogy will be fundamental to success. Intentionally created learning gardens can motivate and engage learners (Skinner et al., 2011), providing a promising pathway for positive change. 

References

- Altieri, M. A., Companioni, N., Cañizares, K., Murphy, C., Rosset, P., Bourque, M., & Nicholls, C. I. (1999). The greening of the “barrios”: Urban agriculture for food security. *Agriculture and Human Values* 16, 131–140.
<http://dx.doi.org/10.1023/A:1007545304561>
- Barndt, D. (2002). *Tangled routes: Women, work and globalization on the tomato trail*. Lanham, Maryland: Rowman & Littlefield.
- Berg, P. (2005). Finding your own bioregion. In M. Stone & Z. Barolow (Eds.), *Ecological literacy* (pp. 126–134). San Francisco, California: Sierra Club Books.
- Burns, H. (2009a). Skilled in sustainability: Teaching sustainability in skills-based courses. In W. Leal Filho (Ed.), *Sustainability at universities: Opportunities, challenges and trends* (pp. 195–206). Frankfurt: Peter Lang.
- Burns, H. (2009b). *Education as sustainability: An action research study of the Burns model of sustainability pedagogy* (Doctoral dissertation). Retrieved from ProQuest (Publication number AAT 3391670).

- Burns, H. (2011). Teaching for transformation: (Re)Designing sustainability courses based on ecological principles. *Journal of Sustainability Education, 2*.
- Capra, F. (1983). *The turning point: Science, society and the rising culture*. New York: Bantam.
- Capra, F. (2003). *The hidden connections: A science for sustainable living*. New York: Anchor.
- Corlett, J. L., Dean, E. A., & Grivetti, L. E. (2003). Hmong gardens: Botanical diversity in an urban setting. *Economic Botany* 57(3), 365–379.
[http://dx.doi.org/10.1663/0013-0001\(2003\)057%5B0365:HGBDIA%5D2.0.CO;2](http://dx.doi.org/10.1663/0013-0001(2003)057%5B0365:HGBDIA%5D2.0.CO;2)
- Dresner, M., & Seamans Blatner, J. (2006). Approaching civic responsibility using guided controversies about environmental issues. *College Teaching, 54*, 213–220.
<http://dx.doi.org/10.3200/CTCH.54.2.213-220>
- Gaylie, V. (2009). *The Learning Garden: Ecology, teaching, and transformation*. New York: Peter Lang.
- Holmgren, D. (2002). *Permaculture: Principles and pathways beyond sustainability*. Hepburn, Australia: Holmgren Design Services.
- Lange, E. (2009). Fostering a learning sanctuary for transformation in sustainability education. In J. Mezirow & E. W. Taylor (Eds.), *Transformative learning in practice* (pp. 193–204). San Francisco, California: Jossey Bass.
- Lappé, F. M., & Lappé, A. (2002). *Hope's edge: The next diet for a small planet*. New York: Tarcher/Putnam.
- Montri, A. (2005). Organic farming and biodiversity. *Rodale Institute News and Research*. Retrieved from <http://newfarm.rodaleinstitute.org/research/jan05/biodiversity.shtml>
- Moore, J. (2005). Seven recommendations for creating sustainability education at the university level. *International Journal of Sustainability in Higher Education, 6*(4), 326–339.
<http://dx.doi.org/10.1108/14676370510623829>
- Nolet, V. (2009). Preparing sustainability-literate teachers. *Teachers College Record, 111*(2), 409–442.
- Orr, D. (1992). *Ecological literacy*. Albany, New York: State University of New York.
- Orr, D. (2004). *Earth in mind: On education, environment, and the human prospect*. Washington, D.C.: Island Press.
- Pimentel, D., Hepperly, P., Hanson, J., Douds, D., & Seidel, R. (2005). Environmental, energetic and economic comparisons of organic and conventional farming systems. *BioScience, 55*(7), 573–582.
[http://dx.doi.org/10.1641/0006-3568\(2005\)055%5B0573:EAEACO%5D2.0.CO;2](http://dx.doi.org/10.1641/0006-3568(2005)055%5B0573:EAEACO%5D2.0.CO;2)
- Rees, W. (1997). *Why urban agriculture?* (Notes for the IDRC Development Forum on Cities Feeding People: A Growth Industry). Vancouver, British Columbia. Retrieved from <http://www.cityfarmer.org/rees.html>
- Second Nature. (2012) *Sustainability curriculum framework* (fact sheet). Retrieved from Second Nature: Education for Sustainability website: <http://www.secondnature.org>
- Serrano, I. (2000). Learning sustainability from crisis. *Convergence, 33*(1), 78–101.
- Skinner, E. A., Chi, U., & The Learning-Gardens Educational Assessment Group. (2012). Intrinsic motivation and engagement as “active ingredients” in garden-based education: Examining models and measures derived from self-determination theory. *Journal of Environmental Education, 43*(1), 16–36.
<http://dx.doi.org/10.1080/00958964.2011.596856>
- Sterling, S. (2002). *Sustainable education: Re-visioning learning and change*. Devon, UK: Green Books.
- Wheatley, M. (2006). *Leadership and the new science*. San Francisco: Berrett-Koehler.

Building a food studies program: On-the-ground reflections from Syracuse University

Evan Weissman,^a Department of Public Health, Food Studies, and Nutrition, Syracuse University

Leigh Gantner,^b Department of Public Health, Food Studies, and Nutrition, Syracuse University

Lutchmie Narine,^c Department of Public Health, Food Studies, and Nutrition, Syracuse University

Submitted 1 December 2011 / Revised 23 February 2012 / Accepted 20 March 2012 / Published online 3 June 2012

Citation: Weissman, E., Gantner, L., Narine, L. (2012). Building a food studies program: On-the-ground reflections from Syracuse University. *Journal of Agriculture, Food Systems, and Community Development*, 2(3), 79–89.
<http://dx.doi.org/10.5304/jafscd.2012.023.010>

Copyright © 2012 by New Leaf Associates, Inc.

Abstract

Syracuse University (SU) is currently building a food studies program within the newly formed Department of Public Health, Food Studies, and Nutrition. In this essay we provide an overview of

our experiences working to establish this food studies program at SU. We reflect on key issues that we struggle with and believe have resonance with and implications in the development of food studies as an academic discipline at other institutions. We briefly outline the emergence of food studies as a distinct area of scholarship, discuss both the opportunities and tensions food studies creates with established disciplines, provide background on the history of food studies at SU, discuss the process of curriculum development, explore the struggles to balance a liberal arts education with professional training, and conclude with some tentative lessons learned thus far in the process.

Keywords

dietetics, food studies, nutrition, program development, public health, social-ecological theory, Syracuse University

^a *Corresponding author:* Assistant Professor of Food Studies, Department of Public Health, Food Studies, and Nutrition; Syracuse University; The David B. Falk College of Sport and Human Dynamics; 426 Ostrom Avenue; Syracuse, New York 13244-3240 USA; +1-315-443-4295; eweissma@syr.edu

^b Assistant Professor of Nutrition, Department of Public Health, Food Studies, and Nutrition; Syracuse University, The David B. Falk College of Sport and Human Dynamics; 426 Ostrom Avenue; Syracuse, New York 13244-3240 USA; lgantner@syr.edu

^c Associate Professor of Public Health, Department of Public Health, Food Studies, and Nutrition; Syracuse University; The David B. Falk College of Sport and Human Dynamics; 426 Ostrom Avenue; Syracuse, New York 13244-3240 USA; lnarine@syr.edu

Introduction

In early 2011, Syracuse University (SU) created the Department of Public Health, Food Studies, and Nutrition when the three existing departments of Nutrition; Health and Wellness; and Hospitality were combined. The newly formed department recently hired its first faculty in food studies and is now in the process of creating a food studies program, with the goal of establishing a curriculum in the near future. This reflective essay provides an overview of the ongoing process to establish food studies at SU. We focus on a few of the issues we struggle with and believe have resonance with and implications for the development of food studies as an academic discipline at other institutions. In the sections that follow, we briefly outline the emergence of food studies as a distinct area of scholarship, discuss both the opportunities and tensions food studies creates with established disciplines, provide background on the history of food studies at SU, describe the process of curriculum development, explore struggles to balance a liberal arts education with professional training, and conclude with key lessons learned so far through this process.

We write this reflection piece collectively, working to bring together three distinct voices representing different vantage points on food studies at SU. Evan Weissman, the first hire for food studies proper, is a geographer by training and has begun to establish a food studies research and teaching program. Leigh Gantner is an assistant professor of nutrition and registered dietitian with a research program and professional experience in community nutrition and regional food systems. Lutchmie Narine is a scholar in public health and served as the chair of the first food studies hiring committee and as chair of the Department of Health and Wellness as it transitioned to the Department of Public Health, Food Studies, and Nutrition. All three authors are now part of the same department that is developing a yet-to-be-defined food studies program.

Food Studies Emerges

Although food and agriculture have long concerned scholars from a variety of academic

disciplines, “food studies”¹ was codified as a distinct academic area when New York University (NYU) established the first food studies program in the late 1990s. Much like the other “studies” that came earlier (e.g., African-American, community, cultural, and women’s and gender), food studies brings a variety of scholars from diverse backgrounds together under one field of expertise. Today food studies has become a major focus outside academia as well, with the exploding popular interest in most things related to food, which has helped in part to shape some of the scholarly work in the discipline. As an emerging discipline, food studies is considered an academic “movement” (Nestle & McIntosh, 2010) that is still working to define itself as independent of traditional disciplines. Indeed, many of the issues we struggle with at SU are entwined with efforts to define a distinct food studies. Many food scholars conduct participatory action research that is grounded in efforts to not only better understand agro-food systems, but to transform them in ways beneficial to communities as well (Allen, 2008; Constance, 2009; Cook, et al. 2006; Guthman, 2008; Koc & Dahlberg, 1999; Nestle & McIntosh, 2010).

The above description is only meant to provide the reader with a broad context for the emergence of food studies as we see it; we do not provide an exhaustive history of the food studies movement here. In fact, although there are many foundational texts for food studies (see Nestle & McIntosh, 2010), there are no comprehensive readers or detailed histories of food studies that do justice to the many streams of thought that have led to the emergence of food studies as a discipline. Readers interested in learning more about the history of food studies would do best to consult work such that of Nestle and McIntosh (2010) and Berg, Nestle, and Bentley (2003).

¹ It may be more accurate to use the term “agro-food” studies to fully account for the systems thinking and insistence by food studies scholars on studying agriculture and food as linked, from farm to fork. In this paper we follow the common practice of using “food studies” for the sake of consistency and brevity.

The emerging field of food studies is decidedly interdisciplinary, and scholars from many different traditional disciplines employ a variety of methods and analyses to investigate food as a window into social, cultural, political, and economic processes. This scholarly movement is slowly solidifying into an intellectual community that combines world-views of the social sciences, natural sciences, and humanities in building a unique perspective that examines agriculture and food through a systems approach by focusing on the network of socio-political relationships that extend “from farm to fork” (and beyond). The food system is defined as “the set of activities and relationships that interact to determine what [and] by what methods and for whom food is produced and distributed” (Fine, 1998, p. 3). Sarah Whatmore (1995) outlines the food system and identifies points of analysis by linking knowledge, production, and consumption through four sectors: (1) the agri-technology industry, (2) the farming industry, (3) the food industry, and (4) food consumption. Although much previous academic research focused predominately on the intricacies of a particular sector, some scholars and departments (e.g., in nutrition, agriculture, and the social sciences) have long considered food as a *system* or *process*, including the social, political, and economic contexts of food from production through consumption. Historically, these efforts were scattered; food studies finally brings them together. The faculty in our newly formed department at SU includes scholars from nutrition and public health, and we are now developing a systems approach by connecting distinct perspectives, adding additional disciplinary approaches, and centering these efforts on food.

Placing the analytic focus on food in a more holistic perspective provides coherence and, as Whatmore (2000) explains, facilitates better understandings of farming not as a discrete activity, but as connected to a longer “agro-food chain” that stretches well beyond the farm gate. This broader understanding also seeks to include the social, psychological, and public health context within which both the academic and lay public now consider food.

From this broader perspective, three critical issues have emerged as foci of food studies:

questions of nature, food consumption, and the body. Agricultural production is uniquely tied to nature, and the industrialization of agriculture has prompted questions regarding its environmental impacts; consumption of food is intricately tied to social constructions and cultural meanings; and the body (of humans and animals) is a scale intricately woven into agro-food systems through processes such as the bio-engineering, poisoning, and/or nourishing of bodies (Freidberg, 2003; Watts, 2000; Whatmore, 1995, 2000).

In his presidential address to the 2008 annual joint meetings of the Agriculture, Food, and Human Values Society and the Association for the Study of Food in Society, the two most prominent food studies professional organizations in the United States, Doug Constance (2009) traced the emergence of food studies by linking four sequential but overlapping questions that drive current food research: (1) agrarian, (2) environmental, (3) food, and (4) emancipatory. The “agrarian question”² focuses on the relationship between capitalism and agriculture, and explores the uniqueness of agricultural production.³ Building on Rachel Carson’s (1962) public critique of widespread post-war pesticide use, the environmental question explores the environmental impacts of the food system in general, and agricultural production in particular. The food question critically examines human health impacts of agro-food — the scholarly focus on “quality”⁴ — and alternative food systems (or “alternative food networks”) as a response to poor food quality. Finally, the emancipatory question builds on the previous three, which all identify barriers to true alternatives to industrialized agriculture, by focusing on the development of sustainable and just food systems. “More specifically,” Constance (2009, p. 9) explains, the

² We follow the literature in referring to “the agrarian question” in the singular, even though there are really multiple and interrelated agrarian questions regarding the uniqueness of agricultural production.

³ Indeed, Karl Kautsky first posed the agrarian question in 1899, illustrating in part the long history of agro-food scholarship.

⁴ The focus on “quality” refers to consumer concerns over health and safety in the industrial food system and the effort to improve the “quality” — defined in multiple ways — of food.

emancipatory question is about “what kind of agrifood system might decrease injustice and inequality?” The emancipatory question is a crucial one, especially as food studies embodies a normative research agenda that aims not only to build better knowledge of food systems, but to improve them as well. This drive to develop more equitable and just food systems connects food studies to the legal and public policy fields in order to understand, develop, and advocate for improved food policies.

Opportunities and Challenges for Interdisciplinary Collaboration

The discussion above shows the potential for food studies to create many opportunities for collaboration between and across disciplines. However, the emergence of the field is also inherently threatening to many of these same disciplines, as it encroaches on areas of inquiry that are already firmly established. Some of the threats may reflect micropolitics or struggles over resource allocations at specific institutions, but they are ultimately tied to disciplinary boundaries and struggles over who gets regarded as the food authority (in public life as well as in the academy).⁵

Disciplinary tensions, of course, represent a challenge to any institution seeking to establish a food studies program. In our university and college, nutritional science is the authority on food, and its emerging relationship with food studies is currently being explored.⁶ This relationship with nutrition is exemplary of the emergence of food studies elsewhere. Across the country, many food studies programs are developed in relation to existing nutrition programs⁷ (e.g., NYU, George Washington University). Critical reflections on nutritional science (e.g., as too focused on micro-nutrients or too closely related to industry) in many

ways helped spark the emergence of food studies. Moreover, food studies overlaps with many areas of nutritional science, raising the question can it (and should it) exist as a separate field. Certainly some of the methods, approaches, and fields of inquiry are very similar. In many universities, as well as in practice, the field of nutritional science is very multidisciplinary in its own right, spanning molecular science, and clinical and behavioral aspects of human nutrition, as well as a growing array of social sciences, including anthropology, sociology, and economics. There are currently many examples of nutritionists working to improve food- and nutrition-related public policy, develop healthier food systems, and advance food justice for low-income populations (Clancy & Ruhf, 2010; Nestle, 2002; Wilkins, Lapp, Tagtow, & Roberts, 2010).

Food studies has an opportunity to build from work in nutritional science and other disciplines in order to create its own theoretical worldview and methodology to more fully examine systems or ecological thinking about food, including more direct explorations of food justice issues. However, the emergence of food studies in these critical areas must be done respectfully, so as not to undermine the important need for scholarly collaboration between fields. For instance, in his best-selling book *In Defense of Food*, Michael Pollan (2008) pans “nutritionism” that reduces foods to “the sum of their nutrient parts” (p. 28). Michael Pollan, one of the most publically recognized food writers, is often associated with food studies, especially by the public and scholars not directly working in the area. Although Pollan (2008) attempts to distinguish between *nutritionism* as an ideology and nutrition as a science, his work can easily be interpreted as an affront to nutrition science, potentially undermining the building of alliances. We recognize the importance of Pollan’s (2006, 2008) work for engaging the public in food issues, but we are also weary of his ahistorical treatment of nutrition science.

The relationship between food studies and dietetics also represents some unique challenges as food studies emerges not only at the scholarly level, but also as an undergraduate major, with implications for job opportunities after graduation.

⁵ We recognize the need for a gendered analysis of agriculture and food scholarship, but do not cover this ground herein.

⁶ SU does not have a history of agricultural scholarship, and thus the nutritional science program has largely had food as a scholarly focus to itself.

⁷ Of course there are other food-related programs emerging, most notably related to environmental studies, sustainable agriculture, and even across entire institutions (e.g., University of Vermont).

Registered Dietitians are increasingly regarded as food and nutrition experts in their communities, and it has yet to be sorted out how individuals educated in dietetics and food studies will share this professional space in their communities, if at all. In addition, the Academy of Nutrition and Dietetics is currently pursuing a legislative agenda to promote the licensing of dietitians and nutritionists in the U.S. The academy asserts that licensing is necessary to “protect the public health by establishing minimum educational and experience criteria for those individuals who hold themselves out to be experts in food and nutrition” (Academy of Nutrition and Dietetics, 2011). The academy encourages licensure to prevent harmful nutrition information and advice from being delivered to the public by untrained persons and to provide recourse to those who have been harmed by advice received from nondietitians, which is obviously good for public health. But what will be the impact of licensure on students emerging from food studies programs? Clearly food studies students would not be trained to do medical nutrition therapy and thus would not hold clinically oriented jobs (indeed, students trained in food studies might be critical of this model), but in community-based programs the potential overlap in interests and responsibilities for a dietitian and a person trained in food studies is much greater.

A Brief History of Food Studies at Syracuse University

Syracuse University has offered nutrition and food courses since 1917, and it currently graduates about 40 students per year. About half the students currently enrolled in the nutrition program fulfill the didactic requirements to become a Registered Dietitian (RD). The stringent program requirements of the didactic program, coupled with a relatively small faculty, have meant that much of the pedagogical emphasis in the Nutrition Department within the last several years has been on dietetics education with a rigorous curriculum and many strong students who apply and hone their skills in the community. Faculty research, however, is much broader and includes, for example, research on the influence of the built environment on health, and the role of traditional foods in

disease prevention. Dietetics education has a strong emphasis on clinical and management aspects of the dietetics profession and is based in large part on the medical model, although cultural and community aspects of food and nutrition are also significant parts of the curriculum. While the importance of dietetics will continue into the future, collaboration with a food studies program creates an opportunity to broaden the curriculum and scholarly opportunities, and in particular to explore the political, economic, and agricultural aspects of food in greater depth.

The Hospitality Management (HM) program has offered courses relevant to food studies since 1985. Six hospitality courses are cross-listed and included in the accredited didactic curriculum. In addition, the hospitality program offers culinary courses that seek to incorporate food systems thinking, examine a variety of food system sectors, and introduce students to diverse food cultures. In 2010 the decision was made to close the hospitality management program with the expectation that the courses currently cross listed with the Nutrition Department would continue to be offered and there would be an evolution into a food studies program. This decision was not without controversy, but every effort is being made to see that the transition to food studies is done with as little disruption to hospitality management students, staff, and faculty as possible. The closing of the HM program has provided an opportunity to think about possibilities for utilizing the skills of HM faculty and the course content from the HM program within the emerging food studies program. In particular, attention is being paid to how food studies students could be trained in food science and culinary arts, and how hospitality management methods and ways of analysis might inform, for example, the study of new food-related businesses. Indeed, early discussions about the food studies program explored creating areas of specialization students could pursue that retained important aspects of the hospitality management program, such as culinary arts, cross-cultural cuisine, and food service operations. The areas of culinary arts and cross-cultural cuisine would relate to the food consumption component of the food system as outlined by Whatmore (1995) and food

service operations would link to the food industry component of Whatmore's typology.

The Public Health (PH) program at SU emerged from the closing of the nursing school. The program is seven years old and offers degrees at both the bachelor's and master's levels. In keeping with developments in the broader public health field, the program has sought to bring more focus to nutrition issues, including many emerging health issues produced by the conventional food system, and also in the context of exploring inequalities in access to nutritious foods along lines of class, race, and gender. The clearest manifestation of these inequalities is the existence of food deserts. Indeed, a faculty member from the public health program produced one of the earliest published studies on food deserts in Syracuse, which attracted national attention for linking low birth weight to disparities in access to healthy food (Lane et al., 2008). The commitment of the public health program to focusing on food and nutrition issues resulted in that program making the initial investment in hiring the first specifically designated food studies faculty member on our campus.

These three relatively small programs have now been merged into one department of Public Health, Food Studies, and Nutrition (PFN). All three programs clearly emphasize health promotion, and all three have the capacity to examine health issues from a social-ecological worldview. Social-Ecological Theory describes the interaction between individual-level factors (e.g., biology, genetics, knowledge, attitudes, and beliefs) and environmental-level influences (e.g., cultural contexts, public health policies, and the built environment) on health. These multiple layers interact with each other dialectically, such that the environment influences individual behaviors, but individual behaviors likewise (re)produce the environment (McLeroy, Bibeau, Steckler, & Glanz, 1988; Stokols, 1996). Table 1 shows how the four sectors of the food system articulated by Whatmore (1995) are embedded within this broader socio-ecological framework, which examines food from multiple disciplinary paradigms.

Notably, the emerging food studies program at SU does not yet specifically include a focus on

agricultural production and questions of the natural environment. We are cognizant of this gap in our faculty expertise and are working to fill this. Our first food studies faculty member is an environmental geographer who researches urban food production, and we are in the process of hiring a senior faculty member to fill this gap. We are also working with colleagues at our neighboring institution — the State University of New York College of Environmental Science and Forestry (SUNY ESF) — and in other disciplines across the campus on systems research that includes questions of the natural environment.

Developing a Food Studies Curriculum

Food Studies, by its very nature, is an interdisciplinary curriculum pulling scholarly approaches, methods, and topics of inquiry from both the social and natural sciences. Preliminary explorations at Syracuse University have found an ever-widening swath of disciplines with overlapping interests in food. In addition to public health, nutrition, hospitality, and other usual suspects such as geography, anthropology, and biology, food scholarship is found within disciplines such as architecture, communications, journalism, literature, management, public administration, visual arts, and the law. For food studies to be a successful scholarly field, it must strike a balance between extracting needed expertise from these disparate fields, while also distinguishing itself sufficiently from closely related disciplines (e.g., nutrition, anthropology), so as to stand on its own academically. In effect, food is an essential part of daily human existence, and for this reason it touches on nearly every aspect of human life. With so many potential connections, the question in developing a food studies curriculum is not so much who ought to collaborate, as how to focus collaborations in a way that creates a cohesive and manageable curriculum.

Developing this curriculum first requires the development of a specific vision of food studies at SU. Initial work on this vision sought to align any programs on our campus with the major forces affecting food studies nationally and globally. In particular, the program would focus on food as part of a social ecological system that links its

production and distribution to changing social constructions and cultural meanings of food, which ultimately affect the body, including health. Our approach does not seek to duplicate the work already done in other disciplines, but rather seeks to complement and in other ways supplement these efforts to bring about a better understanding of the nature of food and its meaning for our continued existence. Syracuse University in many ways is uniquely positioned to advance this perspective on food studies. We have the opportunity to collaborate in complementary ways with established departments within SU (e.g., geography, sociology, anthropology, architecture) and at

SUNY ESF (e.g., forestry, landscape architecture). Future collaborators could include other schools in the area such as Cornell University and SUNY Morrisville, both of which have extensive expertise in food and agriculture. On the other hand, not having agricultural sciences on our campus provides us the freedom to think in new ways about food and in particular to blend social science and humanities worldviews into a more comprehensive social ecological conception of food studies as articulated in table 1. We believe the work of the professional food studies associations such as the Agriculture, Food, and Human Values Society (AFHVS) and the Association for the Study of

Table 1. Food Studies Viewed Through the Socio-Ecological Model

Socio-Ecological Construct	Potential Food Studies Topic Areas ^a
Individual/Intrapersonal <i>Food Consumption^b</i>	<ul style="list-style-type: none"> • Health status • Physiological nutrient needs • Food knowledge • Food production and preparation skills • Food beliefs • Financial resources • Taste and food preferences • Eating behaviors
Interpersonal <i>Food Consumption</i> <i>The Food Industry</i>	<ul style="list-style-type: none"> • Food norms (e.g., in families, neighborhoods, and other communities of identity) • Systems of information exchange (e.g., social networks, media)
Organizational/Institutional <i>The Food Industry</i> <i>The Farm Industry</i> <i>The Agri-Food Industry</i>	<ul style="list-style-type: none"> • School and workplace food environments • Institutional food policies • Structure and management of food processors, distributors, and retailers • Farm management
Community <i>Food Consumption</i> <i>The Food Industry</i> <i>The Farm Industry</i> <i>The Agri-Food Industry</i>	<ul style="list-style-type: none"> • Social inequities in food access and affordability • Community organizations and social movements around food issues • Building local food system infrastructure and connections • Farmland protection • Development and dissemination of alternative agricultural production practices • Community economic development • Alternative food networks
Public Policy <i>Food Consumption</i> <i>The Food Industry</i> <i>The Farm Industry</i> <i>The Agri-Food Industry</i>	<ul style="list-style-type: none"> • Local, state, federal, and international policies related to agricultural production, trade, consumption, and food assistance • Food labeling • Food policy councils • Zoning and planning regulations • Environmental protection policy

^a Each of these topic areas can be viewed through the lens of multiple academic paradigms, including history, public health, nutrition, political economy, anthropology, sociology, and the law.

^b See Whatmore (1995).

Food and Society (ASFS) also will be very useful in helping us structure our curriculum in new and innovative ways. For example, ASFS maintains lists of food studies programs and syllabi, and the American Planning Association (APA) has gathered relevant curricula, both of which are good places to start. Also, various listservs house vibrant discussions about food studies and provide a valuable resource for curriculum development. In addition, it will be important for our faculty to be actively involved with these professional associations as they provide a window on cutting-edge developments in the field that can be brought back into the classroom and also serve as the professional base from which standards of professional conduct and research excellence can be developed to guide the advancement of current and future food studies faculty as they advance within our academic community.

Another unique feature of our campus that might make it more conducive to the development of a rigorous food studies program is our institutional emphasis on engaged scholarship, or what our chancellor calls “scholarship in action.” Our university has purposefully focused on and devoted resources to ensuring that scholarship on our campus is informed by the realities on the ground in our surrounding community, and in turn that our scholarship works to transform collaborating communities at local, national, or global levels. Thus while we may not have on our campus the far-reaching extension service infrastructure that exists at land-grant institutions, we have considerable history and institutional support for working with communities, a feature that promises to be a distinctive feature in our food studies scholarship and teaching.

Consistent with this emerging vision for food studies on the SU campus, a concept paper outlining the broad features for a food studies curriculum for an undergraduate degree was developed and circulated in the latter half of 2010 to faculty in what is now the Department of Public Health, Food Studies, and Nutrition. In addition, the concept paper outlined potential core courses of the proposed degree and various options for tracks or areas of concentration within the degree. The concept paper was met with tentative approval at a

meeting of the faculty, but it was clear further work was needed to flesh out the curriculum’s details. A committee was formed consisting of faculty from each of the areas represented at that time in the department (i.e., public health, nutrition, and hospitality management). The committee reported back to the college faculty, and in consultation with senior administration within the college, the committee’s focus changed toward the development of a minor in food studies constituted by existing courses offered in the department. Faculty concerns with this development included (1) the belief that minors flow out of majors and not the other way around (we need to envision what the larger program would look like before knowing what a minor might look like); and (2) the appreciation that a minor consisting primarily of existing courses would not be credible to potential students and scholars in the field in general. During this discussion, a search for the first faculty hire in food studies was underway. Faculty thought the way out of the impasse would be to defer further development of the curriculum until the new faculty was hired, so as to benefit from the specific expertise of the new faculty and also to further ascertain what type of academic programming would be acceptable to senior administration in the college. In hindsight, this experience clearly demonstrates the need to develop a comprehensive and inclusive process for developing food studies from the ground up, and we are now moving toward engaging faculty directly in a deliberative process.

The new faculty in food studies was hired and has developed the first two food studies courses at SU. The first is a survey course exploring key issues of the contemporary agro-food system, with a focus on issues of concern; the second course examines food movements and grassroots efforts to improve the food system. Thus current momentum for food studies in our department is driven “on the ground” by the new faculty hire. In addition, there is only one faculty member in food studies at this time, and he is at the assistant professor level. It is anticipated the momentum for food studies will continue as the department is now engaged in the search for a second faculty hire. Even so, there is currently no sense of what type of program would be acceptable within our college

structure (i.e., a food studies major, a standalone minor, or perhaps a graduate certificate in food studies).

What is clear is that there is a strong commitment in our department and college to the development of food studies as an area of scholarship on our campus. Testament to this is the considerable resources we have devoted to food studies in the form of two tenure-track faculty positions and the taking of a leap of faith by including “food studies” as part of the name of our new department. But those with an interest in developing food studies must work to further advance the vision of the program by gathering input from potential collaborators. We are currently exploring ways to gather deeper and broader input on what our food studies curriculum could look like. This includes developing a process to solicit ideas for food studies curricula from outside our institution, including greater consultation with successful food studies programs elsewhere. Other ideas to further the development of program curricula include surveying existing faculty working on food-related research and teaching at SU and SUNY ESF. We are also considering developing a research center or faculty cluster around food studies. In short, all options are on the table and we are currently focused on building a broader consensus.

Finally, some faculty are concerned about the jobs food studies students will be qualified for after graduation and would like to see this question figure prominently in any further discussion of curriculum development. This debate in particular draws attention to the tensions between professional training and liberal arts education. At SU, food studies is being developed in an applied college, including programs such as Social Work, Child and Family Studies, and Sport Management, among others. Perhaps we are giving more attention to the issue of practical skill development than we would if food studies were being developed in the College of Arts and Sciences. Other food studies programs have been developed within professional programs (e.g., nutrition, dietetics, agriculture, hospitality, and culinary arts) that take pride in postgraduation student placement. In many ways, food studies (like the other “studies”) emerged out of a critique of the professional

training model of education and is more often driven by a belief in liberal arts education. For example, didactic and internship programs in nutrition turn out very good students for certain kinds of work. However, this type of training does not focus as strongly on broader food system and food justice issues. This is simply to suggest that any one pedagogical approach cannot and does not cover the gamut of food consumption issues, so food studies has an opportunity to approach the study of food from a more heavily liberal arts curriculum. The development of a food studies program can both complement existing disciplines examining food issues as well as contribute to a broadening of the perspective from which food is viewed, potentially contributing to shifts in thinking and curriculum in other fields. This being said, there is still the need to balance the development of well-educated citizens and the real need for practical placements and jobs.

Conclusion

The development of a food studies program at Syracuse University is still in its infancy, but tensions about its vision, direction, and place within the academy have and continue to confound its development. Differentiating food studies from other current academic disciplines that study food, while also adopting and adapting methods, approaches, and topics of inquiry from those related disciplines, requires an ongoing conversation among interested faculty about the vision and expectations for the program. The emphasis within SU to be an engaged university actively working with communities to study and solve problems of mutual interest, situates our university well to adopt participatory research approaches that engage both our students and community members to actively transform community food systems. Ongoing challenges include consolidating a core group of university faculty who can engage in a broad scholarly examination of food studies, developing a student curriculum that can stand on its own as a college major (or potentially as a graduate field), and ensuring that students who eventually graduate from this program have a well-balanced education that has prepared them to think broadly and deeply, while also imparting practical skills.

The work to be done as described above perhaps suggests a lesson for those seeking to develop food studies programs at other institutions: the importance of building consensus on the ground with faculty and other stakeholders about the path for food studies early in the process of program development. In our case at SU, while there had been faculty discussions about food studies, the decision to move forward with the development of an area of study in our college was not made by the faculty. In retrospect there could have been more consultation with faculty and community members about the needs and direction of a potential food studies program. As well, the proper path to take with respect to the hiring of faculty in food studies remains an open question. There seems to be merit in both hiring food studies faculty who can provide expertise and leadership in developing curricula and in hiring faculty after developing consensus and a more concrete plan for the trajectory of the program. Another concern, which is commonly shared across institutions of higher education, is the extent to which senior administration should be involved with curriculum issues that are often thought to be the preserve of faculty and faculty governance. Certainly strong partnerships across disciplines and between faculty and senior leaders in the development of interdisciplinary academic programs can lead to a stronger vision from the outset. This, of course, is the struggle at hand.

References

- Academy of Nutrition and Dietetics. (2011, November 21). *Questions and answers on regulation of dietetics practice*. Retrieved from <http://www.eatright.org/HealthProfessionals/content.aspx?id=7094>
- Allen, P. (2008). Mining for justice in the food system: Perceptions, practices, and possibilities. *Agriculture and Human Values*, 25(2), 157–161. <http://dx.doi.org/10.1007/s10460-008-9120-6>
- Berg, J., Nestle, M. & Bentley, A. (2003). Food studies. In S. H. Katz & W. W. Weaver (Eds.), *The Scribner Encyclopedia of Food and Culture*, Vol. 2 (pp. 16-18). New York: Charles Scribner's Sons.
- Carson, R. (1994 [1962]). *Silent spring*. New York: Houghton Mifflin Co.
- Clancy, K. & Ruhf, N. (2010) Is local enough? Some arguments for regional food systems. *Choices*, 25(1). Retrieved from <http://www.choicesmagazine.org/magazine/article.php?article=114>
- Constance, D. H. (2009). The four questions in agrifood studies: A view from the bus. *Agriculture and Human Values*, 26(1–2), 3–14. <http://dx.doi.org/10.1007/s10460-008-9187-0>
- Cook, I., et al. (2006). Geographies of food: Following. *Progress in Human Geography*, 30, 655–666. <http://dx.doi.org/10.1177/0309132506070183>
- Fine, B. (1998). *The political economy of diet, health and food policy*. London: Routledge. <http://dx.doi.org/10.4324/9780203445297>
- Freidberg, S. (2003). Not all sweetness and light: New cultural geographies of food. *Social and Cultural Geography*, 4(1), 3–6. <http://dx.doi.org/10.1080/1464936032000049270>
- Guthman, J. (2008). Neoliberalism and the making of food politics in California. *Geoforum*, 39(3), 1171–1183. <http://dx.doi.org/10.1016/j.geoforum.2006.09.002>
- Kautsky, K. (1988 [1899]). *The agrarian question*. London: Zwan.
- Koc, M. & Dahlberg, K. (1999). The restructuring of food systems: Trends, research, and policy issues. *Agriculture and Human Values*, 16(2), 109–116. <http://dx.doi.org/10.1023/A:1007541226426>
- Lane, S. D., Keefe, R. H., Rubenstein, R., Levandowski, B. A., Webster, N., Cibula, D. A., ... & Brill, J. (2008). Structural violence, urban retail food markets, and low birth weight. *Health & Place*, 14(3), 415–423. <http://dx.doi.org/10.1016/j.healthplace.2007.08.008>
- McLeroy, K. R., Bibeau, D., Steckler, A., & Glanz, K. (1988). An ecological perspective on health promotion programs. *Health Education and Behavior*, 15(4), 351–377. <http://dx.doi.org/10.1177/109019818801500401>
- Nestle, M. (2002). *Food politics*. Berkeley, California: University of California Press.
- Nestle, M. & McIntosh, W. A. (2010). Writing the food studies movement. *Food, Culture and Society*, 13(2), 159–179. <http://dx.doi.org/10.2752/175174410X12633934462999>
- Pollan, M. (2006). *The omnivore's dilemma: A natural history of four meals*. New York: Penguin.

- Pollan, M. (2008). *In defense of food: An eater's manifesto*. New York: Penguin.
- Stokols, D. (1996). Translating social ecological theory into guidelines for community health promotion. *American Journal of Health Promotion*, 10(4), 282–298. <http://dx.doi.org/10.4278/0890-1171-10.4.282>
- Watts, M. (2000). Agro-food system. In R. J. Johnston, D. Gregory, G. Pratt, & M. Watts (Eds.), *The Dictionary of Human Geography* (pp. 15–17). Oxford: Blackwell Publishing.
- Whatmore, S. (1995). From farming to agribusiness. In R. J. Johnston, P. Taylor, & M. Watts (Eds.), *Geographies of Global Change* (pp. 36–49). Oxford: Blackwell Publishing.
- Whatmore, S. (2000). Agricultural geography. In R. J. Johnston, D. Gregory, G. Pratt, & M. Watts (Eds.), *The Dictionary of Human Geography* (pp. 10–13). Oxford: Blackwell Publishing.
- Wilkins, J. L., Lapp, J., Tagtow, A., & Roberts, S. (2010). Beyond eating right: The emergence of civic dietetics to foster health and sustainability through food system change. *Journal of Hunger & Environmental Nutrition*, 5(1), 2–12. <http://dx.doi.org/10.1080/19320240903573983>

Living Concrete/Carrot City: An exhibition platform as a growing medium

Nevin Cohen,^{a,*} The New School for Public Engagement

Radhika Subramaniam,^b Parsons The New School for Design

Submitted 20 December 2011 / Revised 27 March and 15 April 2012 / Accepted 16 April 2012 / Published online 11 June 2012

Citation: Cohen, N., & Subramaniam, R. (2012). Living Concrete/Carrot City: An exhibition platform as a growing medium. *Journal of Agriculture, Food Systems, and Community Development*, 2(3), 91–102.
<http://dx.doi.org/10.5304/jafscd.2012.023.012>

Copyright © 2012 by New Leaf Associates, Inc.

Abstract

The authors of this paper co-curated *Living Concrete/Carrot City*, an exhibition at The New School during the Fall 2010 semester that explored the relationship between urban agriculture and the city, and the roles of farmers and gardeners, designers, artists, activists, academics, and others in integrating food and agriculture into everyday city life. This reflective essay discusses the genesis of the exhibition, our curatorial decisions, and the interactions among students, faculty, and community members that we observed within the gallery. The project supported university goals of cross-

disciplinary and public scholarship, created a space for members of the urban agriculture community to learn from each other, and demonstrated the potential for an exhibition platform to serve as a vehicle for liberal arts and design schools to engage in food systems research, teaching, design practice, and public engagement. While the essay focuses on the specific instance of this exhibition and interdisciplinary collaboration, it suggests some implications for consideration by other urban institutions of higher education.

Keywords

civic agriculture, exhibition platform, pedagogy, urban agriculture

Introduction

Visitors who walked into a gallery at the heart of The New School campus in Fall 2010 found themselves greeted by the buzz of Nova Scotia bees. These field recordings were to be found once more in a sound composition farther within the gallery that explored the potential impact of human com-

^{a,*} Corresponding author: Nevin Cohen, Assistant Professor, Environmental Studies; The New School for Public Engagement; 72 Fifth Avenue, Room 518; New York, NY 10011 USA; nevincohen@gmail.com

^b Radhika Subramaniam, Assistant Professor, Art & Design History and Theory; Director and Chief Curator, Sheila C. Johnson Design Center; Parsons The New School for Design; 2 West 13th Street, Room Z101; New York, NY 10011 USA; subramar@newschool.edu

munication technologies on colony collapse disorder.¹ That summer, New York City had lifted the ban on beekeeping, and beaming in over the web, in perfect legality, was a live feed of rooftop hives in Brooklyn. The coalescence of interest around bees represented in the gallery was part of *Living Concrete/Carrot City*, a semester-long exhibition platform that we co-curated at the Sheila C. Johnson Design Center (SJDC) at Parsons The New School for Design.²

As the portmanteau title suggests, the exhibition had its genesis in an exchange. Dr. Joseph Nasr from Ryerson University, Canada, was appointed as a visiting fellow at The New School during the Spring 2010 semester. He had recently co-curated *Carrot City*, a traveling exhibition about the intersection of design and urban agriculture,³ and his residence at The New School encouraged us to work together to include a selection of the Carrot City exhibits in a larger exhibition.

An important source of inspiration for *Living Concrete*, as we titled the New School exhibition, was the fact that across the university, food systems research, teaching, and practice occurred in programs not connected to food studies or agriculture. Liberal arts and design majors, as well as graduate students in urban and environmental policy, were increasingly taking food studies courses and doing internships on urban farms, in

Figure 1. Living Concrete/Carrot City Exhibition

Photo: Nevin Cohen



school garden programs, and with food policy organizations. Yet these varied, multidimensional, food-related scholarly activities were dispersed throughout the university without coordination or opportunities for collaboration. A major impetus for the exhibition was to bring these colleagues and their work together, and to provide a place for them to identify interconnected interests.

The exhibition also dovetailed with the mission of the SJDC, which actively promotes a dialogue on the role of art and design in responding to the contemporary world. Provoked by current environmental and social challenges, its curatorial agenda reflects and advances creative research and pedagogic practices. The exhibitions and public programs in its two galleries encourage an interdisciplinary examination of possibility and process, blurring the boundaries between classroom, laboratory, studio, and exhibition, and link the university to local and global debates. For a new center under new leadership, the exhibition represented an important opportunity to model a curatorial framework in which the gallery could be more than the sum of its white walls, fostering for the university and beyond a creative and socially engaged aesthetic practice.

¹ A recording of the composition is available at <http://melissagrey.net/index.php?/sounds/sprawl-colony/>

² The term 'platform,' derived from digital media and design, is used in contemporary curatorial practice to designate forms of mediation, research and discussion that present cultural artifacts through collaborative and thematic structures.

³ Carrot City was co-curated by Joe Nasr, June Komisar, and Mark Gorgolewski.

We chose to focus on urban agriculture for several interconnected reasons. The recent interest in urban agriculture in cities throughout North America has been a response to various global and local-scale crises, and serves to educate and politicize people about food systems inequities and the precariousness of conventional agriculture (McClintock, 2010; Morgan & Sonnino, 2010). Significant racial and class disparities exist within the food system, including New York City's urban agriculture communities, and an increasing number of communities, particularly those of color, are engaging in activism to address these injustices (Alkon & Agyeman, 2011; Cohen & Reynolds, 2012; Gottlieb & Joshi, 2010). Often, urban agriculture projects are the sites of organizing to address broader food systems and community development issues, while food production is often as much a means to engage people in these broader issues as it is to put fresh vegetables on the table, especially given the limited space and short growing seasons in cities like New York. Finally, over the past few years, cities throughout North America, particularly New York City with its 1,000 community gardens and dozens of urban farms, have been in the midst of policy and planning efforts to facilitate their expansion (Hodgson, Caton Campbell, & Bailkey, 2011).

From the start, we wanted to create an active space that would attract a wide range of urban agriculture innovators, pioneering environmentalists, educators, policy-makers, artists, social justice advocates, public scholars, community gardeners, designers, and "foodies" in the broadest sense, whose debate and discussion would enliven the gallery. We also wanted to link university faculty and students working on sustainable food system projects to the very active New York City community of food activists and urban agriculture practitioners. We hoped to explore the possibility that by weaving agriculture into the urban landscape, individuals within cities can become more closely connected to the food system through their participation in food production, and by doing so, would be better able to address various social, economic, and ecological challenges.

Curatorial Approach

The development of this exhibition represented a unique collaboration for us, as we weren't a natural fit. This necessitated a continual translation between our disciplinary contexts that influenced the modes of presentation. Nevin Cohen's research has explored the possibilities of involving citizens in urban environmental decision-making (particularly the food system), while Radhika Subramaniam's work has focused on cultures of catastrophe, particularly the creation of critical, creative interdisciplinary and dialogic platforms in such contexts. Where our research and professional practices met was around a mutual interest in fostering conversation among a diverse array of people with shared but divergent expertise in a contemporary issue: food production.

We were also keen to examine in what ways the university's roles as a research, teaching, and convening institution could impact its own urban context. From the outset, we wanted the exhibition to be an invitation, a "pre-text" for vigorous, rigorous, and omnivorous conversations about urban agriculture and related urban food systems, and not merely a didactic presentation. This emphasis on the exhibition platform as process, not display, was established right from our early planning meetings. In order to create inventories of activity, we brought together diverse faculty members — from architecture, design and technology, sociology, environmental studies, and fine arts, to name a few — to discuss their work, their teaching and possibilities for participation in *Living Concrete*. While not all of them produced exhibits for the show, many remained involved by bringing their classes to the gallery and to events. We hoped to attract new voices to the table with ideas, questions, provocations and creative solutions to the issues facing the food system.

The exhibition was conceived as a growing medium, providing a series of rich, open-ended platforms for discussion and dialogue. Thus *Living Concrete*, the collection of projects from The New School, provided the first point of conversation with the visiting *Carrot City*. Alongside this, we built a series of mechanisms for ongoing public engagement into the design of the space and the program; these included bulletin boards, panels, field guides,

readers and a semester-long mapping project tied to a course.

Using a hybrid curatorial model that embraced “the exhibition” as a framework for critical thinking and engagement, we created a series of encounters between the exhibits and programs that involved audiences in its creation. A visitor coming to the exhibition on the last day would find a different show than that at the opening, partly because of the introduction of new materials into the gallery and also because the discussions that infused the space encouraged an active transformation in debate and action. In addition, a media class live-streamed the panels online, resulting in a viewership wider than that of the gallery.

Exhibition

On display were creative, curricular, and research projects from The New School programs in environmental and food studies, design, architecture, and public policy (*Living Concrete*), alongside a selection of exhibits from *Carrot City* that explored the relationship of design and urban food systems. An underlying theme of the exhibition was the possibility that urban agriculture can function as a form of community-building, what Lyson (2004, p.2) described as “civic agriculture,” or “community-based agriculture and food production activities” that also “create jobs, encourage entrepreneurship, and strengthen community identity.” In curating the exhibits, we focused on examples of urban agriculture projects that functioned primarily as mechanisms for self-provisioning, financial profit, and community-building, rather than as speculative designs to substitute for commodity agriculture.

Figure 2. Carrot City Cases

Photo: Martin Seck



These projects were selected for their ability to address a fine-tuned sense of location, the everyday experience of place and people, and the shared responsibility to both that the practice of food production at the community scale can foster. They also demanded that designers (of the built environment, interaction designers, or policy-makers) reflect on their placement in this spectrum as participants. They demonstrated the potentials and challenges in the links between design and urban agriculture, and the ways in which the networks of food and community can be mapped and visualized (including nonhuman members of the community, as in the case of the multimedia exploration of the honeybee’s role in our ecosystem).

Carrot City’s cases included a mix of conceptual, speculative, and realized projects, arrayed across several scales, from citywide projects concerned with building community and knowledge, to home and rooftop projects, to a range of products — such as “growbags” (types of hanging planters), a rainwater collection system, and beehives — that support urban agriculture in all these scales. These types of projects have been included in a recently published book by the same name (Gorgolewski, Komisar, & Nasr, 2011).

Figure 3. Notice Board of Food and Agriculture Events

Photo: Nevin Cohen



The third element of the exhibition, the public platform, was reflected in the design of the exhibition created by Manuel Miranda and Jiwon Lee. Using a series of simple fruit crate-style wooden display units, the gallery was divided into three broad zones, one of which was a platform for public pedagogy: a flexible space to host lectures, readings, panels, classes, or to function as a place for reading and reflection. Two walls of the gallery and a reading area were designed to be collaborative spaces to share information. On one wall we installed a notice board for the constant stream of public events about urban food systems happening in New York City. This grew into a colorful patchwork of event posters, announcements, calls to advocacy, and, in the aftermath of a freak hailstorm that fall, a rally to help some of the affected farms in Brooklyn. Another wall featured a question-and-answer bulletin board that allowed gallery visitors to post questions about urban agriculture to be answered by The New School faculty and students, with the help of experts from the community.⁴ Fre-

⁴ Questions ran the gamut from volunteering, soil contamination in city backyards, distinctions between farm

quently, knowledgeable gallery visitors took it upon themselves to scribble responses. For example, after the opening night of the exhibition, we found a flurry of back and forth discussion by attendees about composting and its regulation in the city.

The reading area contained a collection of books about urban agriculture, field guides and urban agriculture walking tour guides, as well as readers that provided relevant background articles for each weekly panel discussion. A monitor showed two short videos made by The New School

students about local farming initiatives. At lunchtime, in collaboration with Food Studies professor Fabio Parasecoli, we held a series of works-in-progress presentations at brown bag lunches by faculty and students discussing their teaching and research projects. At other times, the benches and reading tables allowed visitors to spend time perusing materials.

It was important to us that this "platform for public pedagogy," should not simply mimic a classroom or lecture hall. The raw, lightweight, crate-like look of the furniture designed for it was meant to evoke a roll-your-sleeves-up, workman-like approach. The benches for seating could transform easily into a temporary display table for models, or into a table for a live-stream computer set-up and for taking notes. The monitor showing videos would become a presentation screen when there were speakers leading discussions. At the end of the year, students who had created food-related projects in a class had their final presentations and

shares and community supported agriculture, and the financing of rooftop farms, to the impact of the large-scale adoption of urban farming on capitalism in America.

review in the gallery, leaving the designs (and some recipes) on display on one of the tables. With this porosity between studio, research and scholarship, community engagement, and professional expertise, we hoped Living Concrete would act as what artist Joseph Beuys called a “social sculpture,” (Tisdall, 1979) a beehive of collaborative, creative, and evolving social dialogue (see Snider, 2010).

Living Concrete Exhibits

Living Concrete featured projects that were inherently exploratory, demonstrating moments of critique and learning through which we intended to convene shared interests as a means of education rather than to attempt to suggest exemplary designs. We wanted to unseat any conception of the gallery or the university as sites of display and mastery, and convey that these exhibits were instances in an ongoing process of research, debate, and engagement.

For instance, we included a set of student videos outlining design interventions in a city bodega not because of their innovative solutions, but because they reflected a keen awareness of the complexity of co-design, particularly the complications that arise with interventions in the food system, and an interrogation of the role of the designer in such relationships. Such reinforcement of the intellectual and social context of the work, illustrating its intersection with a larger conversation, was a significant pedagogic move, underscoring the university as a locus of possibility, not completion. Being exploratory meant that many of these exhibits were created specifically for the gallery, and often we worked with our colleagues and students

to translate their projects into an exhibitable form. A sample of exhibits includes the following.

Bronxscape

Parsons architect David Lewis worked with students and colleagues on *Bronxscape*, an urban rooftop garden and outdoor kitchen in the Bronx for young adults transitioning out of foster care. The exhibit, with a model and photographs of the design-build project, illustrated how a physical site for food-related activities might serve to infuse a sense of community among its users.

Corbin Hill Road Farm

Three videos mapped the complex network that is professor of nonprofit management Dennis Derryck’s *Corbin Hill Road Farm*, an innovative community supported agriculture model that connects low-income South Bronx residents, largely African American and Latino, to rural farms through an eventual ownership stake in the land (see Cohen & Derryck, 2011). The videos, produced by a film student and installed in triptych, connected Derryck speaking about his design

Figure 4. Students Exploring Living Concrete Exhibits

Photo: Nevin Cohen



Figure 5. Five Borough Farm Exhibit

Photo: Martin Seck



inspirations and the ongoing challenges to the residents in Hunts Point coming to pick up their weekly farm share, and further, to the farmers in Schoharie County, New York, who delight simultaneously in knowing who eats their vegetables and in the discovery of new markets.

Backwater Frontwaters

Parsons urban designer Victoria Marshall examined the watercourses that lie hidden beneath our concrete landscape (“backwater”) and the path each raindrop travels from source to sea across the built environment (“frontwaters”). In cooperation with Newark’s Ironbound Community Corporation and Newark Planning Department, as well as the Union Square Partnership and The New School, the installation featured the design interventions created by students to change the function, structure, and meaning of these two patches of the urban ecosystem, building a garden for a natural dye micro-economy at The New School and a community garden in Newark. Hung as a cascading set of strips that mapped changes over time, giant scrolls displayed a series of large-scale maps, while slender film-like strips functioned as small-scale photo documentation.

Mapping Projects

Four exhibits illustrated the process of mapping the food system, two of which evolved over the course of the exhibition. The *Five Borough Farm* project, initiated by the Design Trust for Public Space, a multidisciplinary effort to craft a policy plan for urban agriculture in New York, had an interactive element that included visualization in the form of a “decision tree” deliberately designed to be incomplete, of how public policies affect

whether, where, and what one can farm in New York City. Visitors could submit their own questions about growing food in New York City that New School students (and other experienced visitors) researched and answered.

A related exhibit was an *urban agriculture mapping project* in which students in Nevin Cohen’s environmental studies course met weekly in the gallery to plot the gardens, farms, compost sites, and interconnected organizations supporting urban agriculture in New York. Over the course of the semester, large maps of the boroughs were gradually filled with markers that reveal the complex web of people, spaces, creatures, and things that compose the city’s food system.

A Field Guide to Sustainable Food on the Lower East Side was researched, written, and designed by New School undergraduates for a class in food systems. It provided residents and visitors a map of the food production, distribution, and composting sites that make up a community that in the 1970s turned many vacant lots into vibrant community gardens. Armed with the guide, a visitor could tramp a few square blocks and follow the arc of a tomato from community garden plot to cookout.

Farming Concrete, directed by researcher Mara Gittleman with New School students and volunteers, aimed to quantify the food produced by community gardens in New York City. More than merely counting beans, the project also engaged gardeners in thinking about their parcels in relation to the entire gardening network in the city. The resulting interactive website, together with the logs and diagrams developed by the researchers and gardeners, was on display, presenting a picture of an interconnected community of food producers with diverse and idiosyncratic interests, tastes, and garden patches.⁵

Honeybee Projects

The honeybee made both a literal (albeit virtually so) and imaginative entry into the gallery. A *bee-cam* provided a live, 24-hour video feed of the out-of-hive activities of the bees of Eagle Street Rooftop Farm in Greenpoint, Brooklyn. Considering the relationship between the honeybee and humans was *SPRAWL: COLONY*, a sound performance composed by Media Studies faculty member Melissa Grey, which explored the audio frequencies of human communication that disrupt the lives of honeybees, highlighting the impact of humans on insects and other fauna. In addition to this, we included an extract from *Insectopedia*, a book by Hugh Raffles (2010), New School anthropologist and insectopedist, commenting on the urban bee and describing the intensely communal, communicative, social nature of bees while also arguing that

⁵ See <http://harvest.farmingconcrete.org/>

Figure 6. Five Borough Farm Mapping Project

Photo: Nevin Cohen



if we bring bees more closely into our lives, they may help us to build community and retain some of the sparkle of urban life.

Carrot City Exhibits

The edition of Carrot City that we incorporated in our exhibition, collaboratively created with the curators from Ryerson University, included items selected to represent the possibilities of integrating urban agriculture into the city's infrastructure, potentially transforming our very relationship to food and water, dissipating systemic inconsistencies, inequities, and insecurities. We included those

Figure 7. Examining Carrot City Cases Online

Photo: Martin Seck



projects which focused on using design at various scales to support, replicate, and amplify existing fine-grained, human-scale interlinkages of food, farming, and communities. For those interested in more, the entire catalogue could be viewed digitally on a monitor.

Public Programming

To encourage participation, we organized nine weekly panel discussions on varied topics. Artists Eve Mosher and Tattfoo Tan, urban agriculture activist and chair of the NYC Community Garden Coalition, Karen Washington, and Annie Novack, a professional rooftop farmer, along with other scholars, practitioners, provocateurs, and innovators, came together in lively conversation on Wednesday evenings.

Our first panel discussion, on “Food, Design and Social Change,” investigated how design thinking, the integration of problem-solving analytical and prototyping methods used by designers and planners, can be applied to urban agriculture to solve critical social problems, from inequitable access to healthy food to the development of social capital within low-income communities. The radically innovative approaches ranged from neighborhood farms on asphalt playgrounds and rooftops to an interconnected community gar-

dening and greenmarket venture in East New York.

“Creative Action and Everyday Urban Agriculture” explored what it means for individuals in communities to engage in creative practice to reconsider their relationship to food production, neighbors, and environment through urban agriculture, and the resulting physical engagement with place that growing food requires. The panelists included an urban historian, anthropologist,

architect, and two artists.

A Seattle policy-maker, a Chicago social entrepreneur, and an architect from Detroit discussed the role of neighborhood and urban-scale agriculture in community development as part of a panel on national initiatives. They shared examples of community gardens in public housing developments, neighborhood plans for food-based economic development, and a scheme to provide employment for former addicts through large-scale urban agriculture.

Urban soil was a through-line through these disparate discussions. Attendees raised questions about soil and compost consistently regardless of the week’s topic or the background of the panelists. Inevitably, one or more audience members would ask about soil toxicity, the possibilities of composting organic waste, various soil amendments and fertilizers, and the politics of access to healthy soils and composts.

Additional events included five informal brown-bag discussions and visits by six New School classes. The students of Parsons Product Design professor Robert Kirkbride, who had been studying the effects of population growth, food, and sustainability, prepared a special dinner (served with tableware they had designed and on tables designed by past students) for 30 invited guests

in the food systems research, policy, and practice fields to discuss issues surrounding this critical topic. We also opened the gallery as a meeting space to various groups working on food system issues, such as New York City Food Systems Network, which held its annual end-of-year meeting there, to an organization of women developers exploring the role of food-producing sites in affordable housing projects.

Conclusions: Some Implications for Higher Education

Living Concrete/Carrot City

was as much about the urban university and the role it can play in the city as it was about food and urban agriculture. While we did not survey the gallery visitors for their reactions to the exhibition, we observed several important outcomes for The New School, the urban agriculture community in New York, and the nascent field of food studies. Through our reflection on this particular case, we suggest that there may be some useful implications for consideration by other institutions of higher education, particularly those with urban campuses and a commitment to civic engagement.

Colleges and Universities

Two years earlier, The New School had created a series of thematic interdisciplinary cross-divisional programs in environmental, global, and urban studies that spanned design, science, and the social sciences. Just prior to *Living Concrete's* opening, The New School hired a new director of the university's food studies program with the aim of growing the curriculum into a full-fledged major. This flush of interest was buttressed by the exhibition, which supported the university's goal of advancing cross-disciplinary pedagogy and creative practice, partic-

Figure 8. Panel Discussion on Food, Design, and Social Change

Photo: Martin Seck



ularly across the design and liberal arts schools.

Could other venues have served to bring faculty and students together? In recent years, the curatorial field has evinced what has been called “an educational turn,”⁶ an active interest in the cross-pollination of pedagogic and artistic strategies. A productive re-exploration of the place of the gallery and of educational institutions such as the university, the library, and the archive, this “turn” animates newer forms of interaction and engagement among them. What would it mean for diverse disciplines and institutions to engage in a line of inquiry together? With *Living Concrete*, we sought to explore what it would mean if a university gallery were to provide the curatorial platform for an open-ended research, design, and educational engagement with an issue. Food represented an ideal choice because it elicited a relatively fearless, even opinionated, response from most people alongside a deep investment on their part. Most people had something to say, and even more

⁶ See O'Neill & Wilson (2010) for a useful anthology of commissioned essays and significant writing on this front.

importantly, most people felt they had something to learn.

The exhibition also made evident to us that education may not necessarily be held close to the university vest, especially when individuals and groups, charged by various political, social, economic, and environmental concerns, are eagerly exploring mechanisms for teaching and learning. Several of those — unaffiliated with any educational institution — who attended the talks and panels and participated in the discussions, treated the series as a curriculum, making notes, reviewing the readers, and raising questions from one session to the next. We suggest that exhibitions and galleries with public outreach have the potential to serve such self-organized pedagogies, providing at least one point of entry into even the most ivory of towers.

Relationships with the Urban Agriculture Community

As the exhibition explicitly reached out to those involved in urban agriculture in New York City, people met in the gallery to network, share information, gain inspiration, and create solutions. The weekly panels illustrated the problem-solving potentials of an interconnected urban agriculture system that values the voices of diverse individuals, including artists and designers. The exhibits also provided concrete examples of how urban agriculture projects at various scales offer spaces for civic interaction, whether on the rooftop of a housing project or at the drop-off site for a community supported agriculture venture. We were also reminded that urban agriculture is often as much about building community, re-thinking the nature of public space, and challenging power structures as it is about growing food.

The success of the exhibition rested in part on its casual, invitational nature: the exhibition design, objects, pamphlets, and books encouraged handling, making the gallery a relaxed place in which to work and spend time. We tried to cast the net as widely as possible to attract people working in urban agriculture as speakers and audiences. We advertised the exhibition and public programs through a wide range of organizations, including

Just Food, the NYC Community Gardening Coalition, and individual farmers and gardeners.⁷

The relationships that the exhibition fostered among students and faculty, nonprofit urban agriculture organizations, and farmers and gardeners continue to benefit the urban agriculture community in New York. Since then, The New School has supported student internships on farms and in gardens, hosted additional public programs on urban agriculture, and developed courses about agriculture through service-learning and action research. Faculty members remain engaged in food systems research (like the Five Borough Farm project) and professional practice (like Corbin Hill Road Farm).


Implications for Food Systems Pedagogy

Complex, multidimensional issues such as those urban farmers and gardeners must address require multidisciplinary approaches. *Living Concrete* illustrated some of the ways in which design schools and liberal arts colleges such as ours might contribute to the transformation of the food system by fostering cultural and political change and boundary-stretching creative thinking as well as more conventional design and policy innovations. By blending examples of design thinking that emerge from ordinary urban farmers with those of design professionals, we tried to reinforce the idea of a broad-based democratic participation in addressing urban food issues.

Since the exhibition's closing, food-related research has been active at The New School. For example, students in a new Transdisciplinary Design Graduate program spent the spring 2011 semester working with a community development organization in the Hunts Point neighborhood of the South Bronx to study the consumption, transportation, and production of food. They then developed speculative design prototypes of socially, environmentally, and economically sustainable alternative models. Courses in "women in agro-

⁷ Nevertheless, The New School's physical distance from many of the city's gardeners, farmers, and food activists, who live and grow food in less dense parts of the city, and its status as a private university, may have discouraged some from visiting or participating in public programs.

cology,” “action research and urban agriculture,” food writing, the politics of the food system, and many others continue to be offered in different departments across the university. The Food Studies program recently launched a new blog, The Inquisitive Eater, to feature food systems writing from around the university.

At the SJDC, the curatorial agenda of the *Living Concrete* exhibition remains alive, and food continues to play an active and imaginative part of it. In fall 2011, in a commissioned presentation, artist Michael Cirino of the culinary performance group, a razor, a shiny knife, collaborated with The New School ecologist P. Timon McPhearson to translate the latter’s soil assessment data into an edible visualization.⁸ He used modern culinary techniques to evoke the soil structures that affect the trees across the New York boroughs. At the presentation we “ate soil” belonging to several sites in New York City. This is, of course, about food for trees, not for us, but it brought to the table the epistemological role of taste in understanding our world — how might we interact with our environment if our primary filter was our mouth? — and the ways in which we form part of the ecosystem — how our ways of living literally leach into the environment — and linked it to our substrate — soil — all of which were foundational to our concerns in *Living Concrete*. 

References

- Alkon, A. H., & Agyeman, J. (Eds.). (2011). *Cultivating food justice: Race, class, and sustainability*. Cambridge: MIT Press.
- Cohen, N., & Derryck, D. (2011). Corbin Hill Road Farm Share: A hybrid food value chain in practice. *Journal of Agriculture, Food Systems, and Community Development*, 1(4), 85–100. <http://dx.doi.org/10.5304/jafscd.2011.014.011>
- Cohen, N., & Reynolds, K. (2012, April). *Policy and research networks and collaborations to strengthen urban agriculture in New York City*. Paper presented at the Agriculture in an Urbanizing Society conference, Wageningen University.
- Gorgolewski, M., Komisar, J., & Nasr, J. (2011). *Carrot City: Creating places for urban agriculture*. New York: Monacelli Press.
- Gottlieb, R., & Joshi, A. (2010). *Food justice*. Cambridge: MIT Press.
- Hodgson, K., Caton Campbell, M., & Bailkey, M. (2011). *Urban agriculture: Growing healthy, sustainable places*. Chicago: American Planning Association.
- Lyson, T. (2004). *Civic agriculture: Reconnecting farm, food, and community*. Lebanon, New Hampshire: Tufts University Press.
- McClintock, N. (2010). Why farm the city? Theorizing urban agriculture through a lens of metabolic rift. *Cambridge Journal of Regions, Economy and Society*, 3(2), 191–207. <http://dx.doi.org/10.1093/cjres/rsq005>
- Morgan, K., & Sonnino, R. (2010). The urban foodscape: World cities and the new food equation. *Cambridge Journal of Regions, Economy and Society*, 3(2), 209–224. <http://dx.doi.org/10.1093/cjres/rsq007>
- O’Neill, P., & Wilson, M. (Eds.). (2010). *Curating and the educational turn*. London: Open Editions and Amsterdam: de Appel arts centre.
- Raffles, H. (2010). *Insectopedia*. New York: Pantheon.
- Snider, S. (2010, November 3). Living Concrete/Carrot City: What do you want from your city’s soil? [Web log post]. Retrieved from <http://urbanomnibus.net/2010/11/living-concrete-carrot-city/>
- Tisdall, C. (1979). *Joseph Benys* [Exhibit catalog]. New York: Solomon R. Guggenheim Museum.

⁸ Radhika Subramaniam commissioned this project as part of the semester’s focus on climate change in conjunction with the exhibition U-n-f-o-l-d: A Cultural Response to Climate Change, curated by David Buckland and Chris Wainwright. Timon McPhearson’s study was an assessment of the long- and short-term ecological impacts of the Million Trees NYC reforestation efforts. a razor, a shiny knife is a culinary performance group that creates educational, social, and theatrical experiences.

Building sustainable food systems in a single bottom-line context: Lessons from SEED Wayne, Wayne State University

Kameshwari Pothukuchi, Department of Urban Studies and Planning, Wayne State University

Submitted 12 December 2011 / Revised 21 February and 10 April 2012 / Accepted 10 April 2012 / Published online 8 June 2012

Citation: Pothukuchi, K. (2012). Building sustainable food systems in a single bottom-line context: Lessons from SEED Wayne, Wayne State University. *Journal of Agriculture, Food Systems, and Community Development*, 2(3), 103–119.
<http://dx.doi.org/10.5304/jafscd.2012.023.011>

Copyright © 2012 by New Leaf Associates, Inc.

Abstract

This paper discusses a four-year effort, embodied in an initiative called SEED Wayne, to implement a university-community sustainable food system collaboration involving multiple activities in campus and neighborhood settings, which also coincided with moves to institutionalize elements of the program as part of the university's core functions of education, research, engagement, and operations. The paper documents the many ways in which activities have indeed successfully integrated across the university's functions and discusses factors accounting for this integration. However, attempts to institutionalize the farmers' market as a university operation have encountered barriers heightened by an increasing focus on the single economic bottom line brought on by public funding cutbacks, which exacerbates the cleavage between functions considered academic —

teaching and research — and those related to engagement and operations. The university's vast bureaucracy also challenges innovative approaches to an integrative sustainability agenda. The paper discusses the implications of these challenges and offers recommendations to others wishing to embark on a similar initiative.

Keywords

SEED Wayne, sustainable food systems, university-community partnerships, university sustainability programs

Introduction

Institutions of higher learning today embark on a sustainability journey for a host of reasons and in a dizzying variety of ways. The possibility of achieving cost savings, revenues from related courses and programs, status and prestige, student learning and leadership on a topic of great societal significance, and increasing endowments and funding support make it an attractive agenda to adopt, even if it is not without risks and challenges. This paper discusses a four-year effort called

Kameshwari Pothukuchi is Associate Professor, Department of Urban Studies and Planning, Wayne State University; Detroit, MI 48202 USA; +1-313-577-4296; k.pothukuchi@wayne.edu. She is also director of SEED Wayne.

SEED Wayne to build sustainable food systems (SFS) at an inner-city university — Wayne State University — and in surrounding Detroit neighborhoods by integrating related activities in the core functions of the university: education, research, engagement, and campus operations. A faculty-led initiative, it also embodies close collaboration with students and administrators, and embraces community-based collaborations as indispensable to the development of sustainable food systems on campus. Since its inception, the program, housed in the Department of Urban Studies and Planning, has linked to the university's four functions in diverse ways and developed competent student leadership on a host of topics. These linkages highlight the critical importance of the topic, its timeliness, the ease with which groups from different disciplinary backgrounds and locations at the university can connect to activities, and the gains these groups experience from the linkages. From this experience, it is fair to say that SFS activities excite the civic imaginations of university members and leaders, who work to extend the reach of activities and enable their success.

Nevertheless, the program has also experienced specific constraints to fully institutionalizing an SFS agenda. While these constraints affect the entire program, they are particularly pronounced in attempts to institutionalize the campus farmers' market — the program's most complex initiative — as a university operation, albeit as one defined as a social enterprise rather than a business operation more typical of the university's structure. To conceptualize a transition from a farmers' market that started life as a faculty-led action research project to a university-run social enterprise that also integrates research, education, and engagement, is to ask basic questions of the university's ability to integrate sustainability within its current organization.

As this study shows, a fully integrated SFS agenda demands at least three things of universities: commitment to multiple bottom lines; interlinking of core academic and nonacademic functions, with special attention to how the university conducts its daily food business consistent with a sustainability mission; and a

responsive bureaucracy that allows novel approaches to flourish. Despite the successes experienced by the program, these dimensions are as yet underdeveloped at Wayne State.

The paper is structured in four parts. The first lays out key arguments for university leadership in SFS to set the stage for a discussion of WSU's status relative to them. The second describes how SEED Wayne's activities are integrated into the core functions of the university. The third section discusses factors that facilitate as well as challenge moves to institutionalize SFS, while a concluding section draws general lessons from this experience and offers recommendations for colleagues and students at other universities contemplating similar activities.

University Leadership in Sustainable Food Systems: The Arguments

The social, ecological, and economic problems posed by the industrial food system — particularly to inner-city and impoverished communities — are many, and need not be repeated here (see, for example, the American Planning Association's Policy Guide on Community and Regional Food Planning, 2007, and Pothukuchi, 2011, for a summary of Detroit's food system assets and liabilities). SEED Wayne's arguments for Wayne State University's leadership in building SFS are based on the following rationales: one, as a civic institution with an urban mission, the university has a responsibility to the surrounding community and region; two, as one of Detroit's larger employers it is endowed with significant human and material resources with which to leverage broader gains; and three, the university's engagement in SFS has the potential to address a not-insignificant portion of the food needs that exist in its neighborhood while creating one path (among many) for a resurgence of a city in decline.

Many colleges and universities are charting a course for a more or less systematic approach to SFS, as evidenced by 166 such projects documented on the Farm to College website (n.d.). Nonetheless, it is fair to note that few universities, if any, embrace SFS spanning a full spectrum of possible roles and linkages, including by seamlessly integrating into research, teaching, engagement,

and operations. More critically, universities' embrace of their broader civic responsibilities seems even less likely given a widespread and increasingly private and business orientation and adoption of strict bottom-line imperatives in all key functions. Given the paper's analysis, these arguments are worth reviewing briefly.

Universities' Civic Missions

Universities serve functions besides training young people for future employment, helping them develop their potential, and replicating society and culture; they also have roles in transforming society and creating more just arrangements (Bowen, 1997; Boyer, 1996; Orr, 1991; White 2000). Cutbacks in public spending, however, drive them to cut services, raise tuition, outsource basic services such as food and housing, and engage in more distance education (Schumpeter, 2011; Kaysen, 2012; Kelderman, 2009). This has led to renewed hand-wringing about the ramifications of increasing privatization to the civic mission of the university (Aronowitz, 2000; Aronowitz & Giroux, 2000; Carnegie Foundation for the Advancement of Teaching and CIRCLE, 2006; Colby, Beaumont, Ehrlich, & Corngold, 2007; Giroux & Giroux, 2004; Kelderman, 2009; The National Task Force on Civic Learning and Democratic Engagement, 2012; Newman, Couturier, & Scurry, 2004).

Critics of privatization call for defending higher education both as a public good and an autonomous arena for the development of critical, productive, and democratically inclined citizens. Fearing that higher education was increasingly becoming a private benefit rather than a public good, in 1996, Boyer called for a robust scholarship of engagement, in which the academy "must become a more vigorous partner in the search for answers to our most pressing social, civic, economic, and moral problems" (p. 17). He warned that "our great universities simply cannot afford to remain islands of affluence, self-importance, and horticultural beauty in seas of squalor, violence and despair" (p. 32). This plea is as urgent today as ever for our university, located as it is in inner-city Detroit.

To be sure, university leaders and civic-minded groups are scarcely immune to such calls (Boyte &

Hollander, 1999; Carnegie Foundation for the Advancement of Teaching and CIRCLE, 2006; Colby *et al* 2007; London, 2002; The National Task Force on Civic Learning and Democratic Engagement, 2012). In early 2012, U.S. Secretary of Education Arne Duncan convened a national conversation, "For Democracy's Future: Education Reclaims Our Civic Mission," on the importance of educating students for informed and engaged citizenship (U.S. Department of Education, 2012). Noting the need for collaboration with other countries to develop sustainable sources of energy, reduce poverty and disease, and curb air pollution and global warming, the secretary concluded, "the U.S. cannot meet those global challenges, both here in our local communities or abroad, without dramatically improving the quality and breadth of civic learning and democratic engagement" (para. 13).

In a similar vein, in *A Crucible Moment*, the National Task Force on Civic Learning and Democratic Engagement asserts that "full civic literacies cannot be garnered only by studying books; democratic knowledge and capabilities also are honed through hands-on, face-to-face, active engagement in the midst of differing perspectives about how to address common problems that affect the well-being of the nation and the world" (2012, p. 3). It further calls on educators and public leaders to advance a twenty-first century vision of college learning that goes beyond community service to foster democratic engagement with others across differences to collectively solve public problems, develop reciprocal partnerships, and analyze systemic causes of a given issue.

Campus sustainability initiatives inherently draw on the civic responsibility of public universities in order to confront the real challenges — challenges which cross disciplinary boundaries, create and reflect social divides, and offer the possibility of multiple solutions — facing local communities and the world. Although many urban universities have enacted civic engagement into their missions (see, for example, Coalition of Urban and Metropolitan Universities, n.d.; and Coalition of Urban Serving Universities, n.d.), a systematic approach to sustainability in these missions is largely absent.

Universities as Leaders in Sustainable Development

Sustainable development is commonly understood as an approach to meeting the needs of the present without compromising the ability of future generations to meet their own needs (World Commission on Environment and Development [WCED], 1987). Sustainability goals also embrace the triple bottom lines of economic vitality, social equity, and ecological integrity. Beginning with the Stockholm Declaration of 1972, there has been a steady stream of national and international sustainability declarations relevant to higher education (Wright, n.d.). A key moment in framing university roles related to sustainability came in 1990 when university presidents from across the globe agreed that, “Universities educate most of the people who develop and manage society’s institutions. For this reason, universities bear profound responsibilities to increase the awareness, knowledge, technologies, and tools to create an environmentally sustainable future” (University Leaders for a Sustainable Future [ULSF], n.d., para. 2).

The leaders discussed the importance of increasing environmental literacy and citizenship, and called for higher education institutions to model environmentally responsible behavior in their daily activities. “By practicing what it preaches, the university can both engage students in understanding the institutional metabolism of materials and activities, and have them actively participate to minimize pollution and waste” (USLF, n.d. para. 3). The resulting Talloires Declaration included actions aimed at increasing awareness of environmentally sustainable development, creating an institutional culture of sustainability, involving stakeholders, educating for environmentally responsible citizenship, collaborating for interdisciplinary approaches, practicing institutional ecology, and broadening service and outreach nationally and internationally.

Experiences with campus sustainability offer many lessons. For example, Moore (2005) offers seven recommendations for a successful initiative, including the need to infuse sustainability in all decisions; promote and practice collaboration; promote and practice transdisciplinarity; focus on personal and social sustainability; and integrate research, service, and teaching. Additional lessons

include the importance of encouraging intra-university learning and stakeholder dialogue, and clarifying required paradigm shifts (Lidgren, Rodhe, & Huisingh, 2006). Bosselman (2001) cautions, however, that “a sustainable university needs an open and transparent administration, capable of supporting the necessary changes. At present, administrative structures are not only alien to students, but to some extent, to staff also. They seem to be concerned with the efficient use of resources only, rather than with the needs of the university as a whole” (pp. 174-175). Unfortunately, as this paper witnesses, the current moment of economic crisis and political resistance seems even less auspicious for universities to take a broader view of sustainability.

Subsequent sections offer a case study of how the two core arguments for university engagement with SFS are implicated in its partial integration in one university, but also are experiencing tensions in specific yet not unfamiliar ways. But first, the next section describes SEED Wayne and its many activities bridging campus and community settings through related partnerships. For more context, a basic description of the university may be found at its website.¹ This discussion and the analysis that follows are informed by SEED Wayne’s and university records, and interviews with administrators and colleagues on campus. WSU also has an office of sustainability, a product of a campuswide sustainability task force convened in 2006 but staffed only since 2011.²

SEED Wayne, Wayne State University

Established in 2008, SEED Wayne’s genesis lies in a university-community challenge grant awarded by the Ford Motor Company Fund. Prior to this, the university offered no activity related to sustainable food systems. In the weeks preceding the grant submission, the author reached out to several high-level university administrators overseeing research,

¹ See the Wayne State University website at <http://wayne.edu/about/>

² Browse <http://livinggreen.wayne.edu/>. The office has to date prioritized conservation and materials recovery and outlines few systematic linkages to educational, research or engagement functions.

community engagement, and academics, and to faculty members in the nutrition department and in the engineering and business schools. This process and the author's outreach in the community resulted in letters of partnership from more than 15 campus and community leaders, constituting an important first step in institutionalizing the initiative as a campus-community collaboration. So crucial were these commitments that SEED Wayne was able to open its doors on June 15, 2008, several weeks *before* the announcement of the Ford award.

Building on existing discourse, SEED Wayne defines sustainability as promoting the four Es: ecological regeneration, economic viability, social equity, and democratic engagement. These are operationalized as follows:

- a) increase access to fresh and healthy foods on WSU's campus and in Detroit neighborhoods, with special emphasis on increasing access to low-income campus and community members;
- b) link local eaters more closely with locally based sources of food;
- c) Increase capacity at various levels, from the individual to the community and region, on key food system issues, such as healthy food preparation with seasonal products, local food production, and food infrastructure and policy development; and,
- d) advance community goals in public health, economic development, ecological regeneration, social justice, and democratic decision-making through food system activities on and outside campus.

SEED Wayne's Links to Education, Research, Engagement, and Campus Operations

SEED Wayne activities are offered in collaboration with diverse campus units and community organizations, and engage campus and community members in different ways. Intentionally cultivating student leadership is also central to all program activities. Beyond specific classroom and research activities that are planned and completed within discrete timeframes of semesters or grant require-

ments, SEED Wayne offers several standing activities: three campus vegetable gardens, the WSU Farmers Market (WSUFM), Detroit FRESH (the healthy corner store project), campus composting, and farm to cafeteria (see table 1 in the appendix). Additionally, activities such as the annual farm tour, the annual harvest dinner, and the quarterly newsletter keep participants engaged, informed, and connected, and their contributions recognized.

Linkages to the University's Educational Mission

Sustainable food systems are integrated into the educational mission of the university through traditional coursework and related projects, independent studies, and interactive learning in co- and extracurricular activities. An annual course on "Cities and Food" offered in the Department of Urban Studies and Planning is open to students from across campus, who are at or above their fourth year of undergraduate study. The course examines impacts on urban areas of the global, industrial food system, and alternatives that are more sustainable, just, and responsive to local communities. It also features a seminar series, "Building a Sustainable Food System in Detroit," in which local food experts discuss specific topics. The seminars are open to the public and are well attended by community members. The course is also officially recognized on campus as a service-learning option, because of team projects designed in collaboration with community-based partners. For example, in 2011 one team surveyed a sample of 22 stores out of a list of nearly 80 Detroit grocery stores designated as full-service by the Detroit Economic Growth Corporation. Among other things, they found a handful of stores that fell far short of the offerings of a full-service store. Its study was published in the *Michigan Citizen*, a community newspaper. Fifty-one students graduated from this class between 2008 and 2011.

Class projects with SEED Wayne as client also have been offered in departments such as English, Anthropology, Sociology, Communications, Library Sciences, Engineering, Graphic Arts, and Instructional Technology. Projects included inquiries into food procurement decisions by shoppers at the WSUFM, reasons motivating participation in campus gardens, and salient themes

for creating SFS messages that are compelling to WSU students. Since 2008, SEED Wayne has helped design projects in nine such classes; additionally, the author has lectured about sustainable food system topics in several more. The author also routinely advises individual-study projects on SFS topics implemented by WSU students and, less often, at the University of Michigan and Michigan State University. Since 2008, the author's contributions to several dozen such studies ranged from comprehensive one-on-one guidance, to quick reviews with suggestions, to responses to questions.

Universitywide lectures by internationally recognized experts in SFS constitute another educational layer. Since 2008, guests included Will Allen, MacArthur Fellow and executive director of Growing Power; Wayne Roberts of the Toronto Food Policy Council; Cecilia Rocha at Ryerson University; and Jerry Kaufman, emeritus professor at University of Wisconsin–Madison. These lectures are widely advertised and receive at least half their attendance from noncampus members. Attendance in these lectures has ranged from 40 to more than 100. The author and other SEED Wayne representatives also lecture in the region and beyond. In 2011, eight such presentations were made nationally and in the Netherlands, the majority in southeastern Michigan. The quarterly newsletter is e-mailed to more than 2,000 subscribers, and the annual harvest dinner also provides related information and engagement.

Not least, much educational activity occurs through hands-on engagement, with informal conversations and structured workshops at, and research activities on the WSUFM, campus gardens, corner stores, and during the annual farm tour. Structured activities include cooking demonstrations, workshops on agricultural practices, tabling on nutrition and healthy food preparation, and sharing educational materials on a variety of SFS topics. Instructors range from professional and licensed chefs and registered dietitians to student volunteers. Project sites such as gardens and the farmers' market are also destinations for field trips organized by local schools and gardening organizations.

Linkages to the University's Research Mission

Constituted as an action research program, all of SEED Wayne's projects involve the collection and analysis of data and preparation of reports for internal use and external dissemination. Additionally, SEED Wayne partners with faculty members across campus on a variety of research topics, including those related to soil and atmospheric pathways of lead and other heavy metals in community gardens, community food assessments, and developing complementary community- and clinically based responses to childhood obesity. Since 2009, the program raised about USD300,000 for these topics — modest by typical university standards, but nonetheless a robust foundation for a novel approach to diverse community-food linkages in a nontraditional university setting. Grants for a similar amount were unsuccessful.

Program sites also have hosted research activities led by students related to the possibility of growing food on the roof of a parking structure, systems analysis of the WSUFM, factors facilitating engagement of neighborhood residents in a community garden started by students, assessing the feasibility of a market delivery initiative, attitudes of suburban church members before and after a guided tour of various Detroit food system sites, and others.

Finally, the author has written research reports for use in policy development and related fundraising by community-based entities such as the Detroit Food Policy Council and the urban agriculture working group. For example, the Detroit Food System Report, 2009–2010, compiles a variety of data and analyses related to Detroit's food system and its community impacts, and offers related policy recommendations.

Linkages to the University's Community Engagement Mission

Because the university's official engagement mission is effectively an elaboration of its goals related to research and education, SEED Wayne broadens this category considerably through goals related to SFS partnerships.³ The last strategic plan adopted

³ The university's official mission statement is available here: <http://www.bulletins.wayne.edu/fib/fib2.html#22177>

by the university identifies the importance of “mutually beneficial partnerships with external organizations, supporters, and friends of the University; [enhancing] relationships with [kindergarten through twelfth grade] school systems and community colleges; and expand[ing] opportunities for the university to be a premier destination and venue for diverse cultures to interact in an urban environment.”⁴

SEED Wayne articulates both an explicit goal to create sustainable food systems through campus-community collaborations, and also defines sustainability as integrally embodying objectives related to social equity and participation. The program formally or informally collaborates with practically all the SFS organizations in the city and several in the region, and serves to connect other university units, including the two units with engagement responsibilities,⁵ to these organizations.

SEED Wayne’s educational and research activities on campus and in the community consistently involve community partners. All activities are designed for mutual campus-community benefit, leveraging university resources to create community gains, building on the expertise of community partners to strengthen program offerings, and

developing community projects to improve food systems knowledge and test the efficacy of related actions. For example, campus gardens receive support in the form of seeds, transplants, and technical assistance from city garden organizations; in turn, market gardeners from across the city sell at the WSUFM under the “Grown in Detroit” label. Similarly, Detroit FRESH collaborates with a local coalition of faith-based organizations to strengthen its outreach component while also contributing to the coalition’s goals related to healthy food access within neighborhoods.

Linkages to University Operations

Although initial conversations with administrators of campus operations met with mixed support, over the last few years resistance has slowly waned, especially from Facilities staff. They have helped gardens expand to new sites, provided loans of tools, developed new water connections for gardens, and dropped off fall leaves with which to cover garden beds. The farmers’ market, too, was enthusiastically supported by the vice president for business operations, who, nonetheless, also signaled from the beginning her view that the activity properly belonged within her division.⁶ The farmers’ market also has provided an opportunity to educate and engage campus police about community food issues.

AVI Foodsystems, the campus food service contractor since 2002, offered only minimal options for partnership initially, as the director of campus operations seemed less enthusiastic than chefs about local sourcing and buying from the farmers’ market. All that changed, however, when the business hired Susan Schmidt as resident director. Schmidt is arguably the region’s pioneer in implementing institutional sourcing from individual farmers, due to her experience in a previous job. Under her leadership, AVI purchased more food from local sources, including the WSU farmers’

(accessed February 15, 2012). On the institution’s commitment to the Detroit metro, the statement notes, “first, it uses its metropolitan locale as a setting for basic and applied research and fosters the development of new knowledge of urban physical and social environments; second, it employs its locale as a teaching laboratory and incorporates metropolitan area materials into its curriculum; and third, it brings knowledge to bear to assist and strengthen the metropolitan area. In particular, Wayne State University contributes to the economic revitalization of southeastern Michigan through research programs that develop new technology and teaching programs that educate the citizens who will live and work in the region in the coming years.”

⁴ <http://www.bulletins.wayne.edu/fib/fib2.html#18871>

⁵ One of these units is Community Engagement @Wayne office, housed in the I. D. Reid Honors College. Founded in 2007, it seeks to connect service-learning courses in the university with community partners (see <http://communityengagement.wayne.edu/>). The other is the Office for Government and Community Relations, which has few systematic linkages to academic activities (see <http://govaffairs.wayne.edu/mission.php>).

⁶ This conditional support caused some frustrations early on given that the market’s goals related to accessibility for low-income populations and preferential support of small-scale farms (through lower stall rentals) could not be achieved by the purely business approach of her unit. She has since left the university.

market and freed the executive chef to offer cooking demos there, sponsored the program's annual harvest dinner in 2009 and 2010, and participated actively in the winter garden and related Earth Week festivities. According to her Harvest Dinner presentation on November 3, 2011, Schmidt credits SEED Wayne as one of the reasons that motivated her to join WSU.

To conclude this section, SEED Wayne not only connects to the university's functions and tri-fold mission in multiple ways, but also greatly extends these by integrating objectives related to SFS. Administrators, colleagues, and students support these objectives with their time and influence. Nonetheless, university support for SEED Wayne activities in meaningful and ongoing ways, either directly through financial contributions, or indirectly through release time for the faculty coordinator, for example, are as yet absent. Perhaps more critically for the future of the program, SEED Wayne finds itself isolated in its efforts to make and maintain links among campus functions and between campus and community goals absent a broader institutional framework that recognizes the importance of these links for sustainability.

Factors Facilitating Integration in the University

Many factors account for the program's ability to suffuse SFS issues into the institution's core functions. Indeed, it is fair to note that these factors map well onto the rationales for the civic responsibilities of the university discussed earlier. First, SEED Wayne links to the university's goals and interests in ways that cause it to attract support — enthusiastic support, in some cases — from students, faculty, alumni, and administrators. The program's projects engage students in experiential learning activities in ways that help students strengthen their knowledge and analytic and creative skills on a significant topic, build their social networks, increase their commitment to the institution, cause them to volunteer in the community, and spend more time on what's mostly a commuter campus.

SEED Wayne also offers multidisciplinary research opportunities on a variety of topics such as those listed earlier. Campus members — faculty,

students, and administrators — who are champions of the program take seriously the university serving as a locus of innovation, and leverage their positions to increase the program's visibility and build new connections (McInnis, 2009; Wayne State University, Division of Research, 2010). The community linkages forged by SEED Wayne also have both practical and symbolic value for a university that prides itself on its urban mission. No less important is the positive press and attention garnered by SEED Wayne's accomplishments on campus and in the community.⁷

Second, SEED Wayne's numerous achievements over a scant four years, admittedly, are also enabled by the timely and comprehensive nature of the topic of SFS, as concerns related to obesity, the local food economy, vacant land, and access to healthy foods loom large in Detroit. University leaders believe that the university stands to make a significant contribution on these issues. It also did not hurt the program's visibility when a year or so after our campus gardens and farmers' market were established, the White House vegetable garden was developed by first lady Michelle Obama, and the pilot farmers' market was offered near the White House.

Third, also driving support by some administrators were the plodding efforts by a campuswide sustainability committee established in 2006 at the behest of a member of the university's board of governors, who wanted the university to take leadership on sustainability issues. The committee met several times but was unable to accomplish much given extremely stretched faculty schedules and the lack of resources to staff it for most of its existence. In a meeting to seek support for SEED Wayne, the VP for research averred that the initiative for sustainability is appropriately driven by faculty members' research interests and connections to students, rather than by a resource-starved campus committee (H. Ratner, vice president for research, personal communication, May 13, 2008).

⁷ For example, Today@Wayne is an e-zine emailed daily to all WSU employees. The WSU Farmers Market and SEED Wayne have been featured on several occasions, including October 4 and November 2, 2011, and April 9 and May 17, 2012. See also McInnis (2009).

Table 2. SNAP and DUFBA at the WSU Farmers Market

Year	Average number of SNAP customers per day	Average SNAP sales per day	Total SNAP spending for year (DUFBA in parentheses)
2009	32	USD219	USD5,032
2010	39	USD 398	USD9,947 (\$6,875)
2011	50	USD 582	USD12,215 (\$11,782)
Estimated total sales in 2011: USD250,000			

^a The Double Up Food Bucks (DUFBA) program matches SNAP spending to support the purchase of Michigan-grown fruits and vegetables.

Finally, SEED Wayne links to the university's functions and participants in versatile and convenient ways, without making unreasonable demands of partnering units — and, indeed, by contributing to their revenues whenever possible — and tailoring the program's participation to their needs and priorities. Growing food on campus, linking gardens and farms with cafeterias, and establishing farmers' markets and healthy corner store projects provide avenues for students and colleagues to participate in accessible ways in terms of skills needed, time commitment, and relative autonomy of implementation. The market contributes revenue to WSU Business Operations by paying for tent rentals, labor for set up and takedown, and vendor parking. Gardeners and Detroit FRESH volunteers come from a variety of disciplines and interests, can be at different levels of study or status (our allotment garden participants, for example, include a college dean, although most are undergraduate students), and are able to contribute effort when their schedules allow. Thus, SEED Wayne supports and advances the university's civic functions, while helping members and partnering units reach beyond usual silo boundaries to link to program activities.

Barriers to Institutionalizing the WSU Farmers Market

Despite these accomplishments, however, an argument can be made that the institution's growing focus on the single economic bottom line and its complex bureaucracy pose continuing challenges for institutionalizing the farmers' market (WSUFM) as a university operation. The former

especially fosters tunnel vision related to the university's mission and reinforces the split between what are considered to be academic functions of research and teaching on the one hand, and nonacademic ones of community engagement and campus operations on the other. Such a split further challenges efforts to create a space that upholds multiple bottom lines of and integrative approaches to sustainability; more

concretely, it makes it hard to uphold the equity, health, and localism-oriented values underlying the WSUFM's structure and operations. It is conceivable that these barriers can be chipped away through negotiations with individual administrators since similar negotiations have borne fruit thus far. However, the farmers' market experience suggests that a more thorough transformation of the university's commitments and practices will likely be needed to institutionalize SFS more fully into the institution's fabric.

The rationales for institutionalizing the WSUFM as a university operation are twofold: one, as a complex operation with many moving parts, it cannot indefinitely be sustained as an action research project within an academic program with zero support staff and implemented by a full-time university faculty member; and two, the university is in a better position to capitalize long-term on the market's research and successes to date. Over the course of four years, the WSUFM project has accomplished several things: It delivered, in convenient ways and at affordable rates, fresh and locally produced foods to campus and nearby community members; incorporated government nutrition programs to serve impoverished members; entered into mutually beneficial community partnerships; provided a viable market for participating vendors; developed a range of educational and social activities for diverse audiences; and supported the research activities of students and faculty colleagues. It also supported several students as employees and more as volunteers, all of whom gained valuable experience. Only a modest subsidy was needed to cover market manage-

ment costs. Armed with these findings, the author has made several overtures to administrators — without much success to date — to explore a better institutional location for the market and ongoing oversight in a way that respects its underlying values.

*The Single Bottom Line of the University
vs. the Multiple Bottom Lines of SFS*

As mentioned earlier, sustainability in SEED Wayne means striving for the bottom lines represented by the four Es. Despite efforts in the direction of energy and materials conservation, the university has not formally defined what leadership on sustainability means for the institution's core purposes and its relationships with the outside world.

The university's business operations unit (BusOps) seems a logical place to explore an optimal administrative location for the WSUFM. This office has jurisdiction over the university's business and nonacademic revenue-generating activities, such as the conference center, parking, and leases to campus-based vendors, and it manages credit and debit card operations. The problems with BusOps as a location for the farmers' market relate most pointedly to the mismatch of its single, economic bottom line, with the market's multiple bottom line values. Many, if not most, of BusOps responsibilities are directed to be fully supported by revenues, with reduced reliance on general fund support.⁸ This has put significant pressure on the unit to shrink costs and continually raise revenues and fees.⁹

⁸ For FY 2011 auxiliary operations budget, see Wayne State University (2010b). Auxiliary operations are self-sustaining, that is, supported entirely through their revenues, except for campus housing.

⁹ See Wayne State University's Auxiliary Budgets Summary (2010b); note especially parking fee increases recommended for FY 2011, and those proposed for 2012 and beyond (p. 200), and increases in residence hall room and board charges (p. 183). A parking rate hike instituted in 2007 without consultation with faculty or students caused great consternation regarding the decision's seeming disconnect with academic life. See <http://webcache.googleusercontent.com/search?q=cache:http://faculty.law.wayne.edu/mcintyre/budget/PDF+Files/Minutes/memo-parking+fee+increase.pdf>

Two, although it operates within the Equal Opportunity and Affirmative Action rubric of public institutions, BusOps has little stated preferential commitment to, nor much practical experience engaging with, locally owned, small-scale, and independent operations, or with those that are minority- or woman-owned. Such businesses are important to the mission of the farmers' market in creating a local and equitable food economy. Almost all businesses located on campus are corporate chain stores with easily recognized brand names. These corporations are adept at doing business with universities and can withstand the university's requirements, conditions, and payment schedules in ways that a smaller business with a lower capacity for processing paperwork or tighter cash flow might not.¹⁰ Furthermore, BusOps has little direct experience working with farmers, as all campus food service operations are outsourced to AVI Foodsystems. Relatedly, the university has zero experience with government nutrition programs such as food stamps (also called SNAP, Supplemental Nutrition Assistance Program).

These characteristics offer little confidence related to the unit's ability to accommodate the needs and constraints of small businesses, let alone small farmers, whose ability to participate any given week is tenuous at best, easily disrupted by a vehicle breakdown or a storm that laid waste to harvests. Preferentially charging Detroit growers lower rent, keeping the dozens of would-be dessert vendors who are willing to pay full rent at bay, discounting rent when a small-scale farmer experiences a particularly bad day, all are alien to the standard operating practice of the institution. Cultivating ongoing relationships with community partners (vendors as well as program partners) in the context of a mutually beneficial sustainability

¹⁰ The challenges faced by smaller firms doing business with university members are many. For example, consistent with its mission, SEED Wayne attempts to give printing business to locally owned, small and independent print shops. Such shops typically prefer up-front payment, which is feasible for smaller amounts. While they are not unwilling to accept larger purchase orders, owners complain bitterly about the length of time payments typically take and the effort involved in chasing payments down.

goal is also not part of the institutional ethic, per se.

Four, although BusOps occasionally seeks research advice from faculty members on its operations, linking systematically to the academic function of the university and building student leadership are not intrinsic to its mission, while these are for SEED Wayne. Thus, the unit has neither the capacity to internalize the multiple bottom line objectives of sustainability nor has the university created a framework for supporting a sustainability mandate within which it can operate. It must be noted that following significant shortfalls of state funding, particularly since the 2008 recession, the university has restructured budgets, shed hundreds of employees, and put into place other efficiencies to save money.¹¹

Although the focus thus far has been on the mismatch between the values and everyday operations of SEED Wayne and BusOps in particular, the fact is that few, if any, units exist that offer an exception to the above arguments. Of the two community engagement units, one is entirely academic in orientation — that is, without links to campus operations, while the other is entirely nonacademic and serves as the community relations arm of the administration.

Funding cuts in state aid experienced by the university are dramatic indeed: in FY 2011, the state's per-student appropriations suffered a body blow, slashed as they were by 71 percent from USD25,197 in FY 2009 (Jen & Bowerman, 2011). As the public, taxpayer-funded share of the university's budget shrinks, the university is forced to support its operations increasingly through private sources, cut services considered peripheral to its

core academic mission, and raise student tuition.¹² It would be naive to expect that forces that cause it to move toward an increasingly privatized model of funding would be hospitable to civic goals such as social equity, ecological stewardship, and local economic development that may, at least initially, impose additional dollar costs. All this is not to imply that institutionalization in a way that endorses the core values of the WSUFM is impossible, nor have all possible avenues been exhausted. It is, rather, to point to the even greater need for transformational leadership than in more stable times.

Bureaucratic Structures in College and University Challenge Market Operations

Currently, all aspects of WSUFM's operation are managed by SEED Wayne, itself housed in the Department of Urban Studies and Planning. SEED Wayne recruits vendors, enters into contracts with them on behalf of the university, manages market operations including the SNAP transactions, and offers educational and other programming in collaboration with campus and community partners. SEED Wayne also administers the Double Up Food Bucks (DUFb) program, which matches SNAP spending to support the purchase of Michigan-grown fruits and vegetables.

SNAP is administered at the farmers' market through a partnership with Eastern Market Corporation, a nonprofit that hosts the region's largest produce wholesale market and a large Saturday farmers' market just southeast of the

¹¹ "Since 2002, the university has implemented permanent cuts in operating expenses of more than USD50 million through initiatives such as hiring and salary freezes, the streamlining of operations and strategic program realignments geared to recent workforce development trends. Since 2006 WSU has saved an additional USD24.6 million through decreased expenditures for utilities, negotiated health care benefits, more efficient purchasing and other initiatives" (Wayne State University, 2010a). See also auxiliary operations budget for FY 2011 reported in an earlier footnote (Wayne State University, 2010b).

¹² Both the tuition rate and its share of the budget went up sharply over the last decade. In FY 2001, state funds represented 63 percent of the budget, with student tuition representing 28 percent. In FY 2012, the respective shares nearly reversed, with tuition representing 60 percent of the budget (Wayne State University, 2011, p. 4). In 2010, Wayne State University Board of Governors voted to increase tuition for resident undergraduate students by 4.4 percent and another 6.9 in 2011 (Wayne State University, 2010b, 2011). Nonetheless, according to the faculty union, administrators received raises at higher rates than did faculty and staff, a move more typical of private corporate practice. Vice presidents received pay increases, for example, that averaged 4.5 percent, while faculty and staff received an across-the-board raise of 2 percent, with smaller distributions of merit raises (Parrish, 2011).

university. When SNAP dollars are debited at the WSUFM (from the Michigan Bridge Card) in return for tokens to be spent at the market, the debited funds are automatically deposited into an account managed by the Eastern Market. At the end of each month, receipts for tokens redeemed from farmers are handed to the organization, which then turns around payments to vendors within one week. Contrast this with the university's typical payment protocol of four to six weeks, which most vendors could not afford. This is just one challenge of many of trying to integrate the farmers' market into the university's bureaucratically organized operations. Accepting SNAP at the WSUFM, however, is indispensable to making it accessible to low-income customers, including students and other community members.

Bureaucracy is a fact of life at large universities: Standardized procedures allow the efficient and consistent processing of transactions regardless of their origin. Novel requests impose demands that are resisted by the bureaucracy and therefore pose additional burdens on faculty members who undertake sustainability initiatives. For example, requests to the college to set up an account separate from research funds to receive market revenues, to fund a student-led activity such as a market-delivery project or a customer incentives initiative, and to reward market volunteers with a free lunch at the market (to be paid for from the program budget), all challenged the college's usual procedures and required many memos with extensive explanations, frustrating even the most basic of tasks. In this context, the ability to outsource SNAP-related financial processing to Eastern Market was a great relief, even if such outsourcing creates its own challenges that are invisible to the college.

Of course, exploring a more optimal institutional location for the market and a better system of management than that led by a full-time faculty member raises other questions and underscores the urgent need for building capacity within the institution for a broader sustainability agenda: Who should lead the farmers' market? Where will the subsidy — modest though it may be — for market management come from on a sustained basis? What mechanisms will be developed for seeking

ongoing input from the various constituencies with interests in the market, for decision-making that balances emerging interests with the market's original sustainability goals and values, and for building a broad-based ownership within the university? There are no easy answers to these questions at the moment, although conversations with administrators across campus have generated some exploratory ideas. One such idea is the possibility of a new high-level "innovations" unit that would help programs avoid the barriers reported here while benefiting from mutual synergies, flexibility, and institutional leadership.

Conclusion and Initial Recommendations

This case study shows that even urban universities without a base in agricultural activities typical of land-grant agricultural schools nonetheless are able to support a variety of sustainable food system activities, including campus-based production. Furthermore, it is possible to integrate sustainable food system activities into all the university's core functions — teaching, research, engagement, and campus operations — even within a context of overall retrenchment, and in so doing, offer yet another way for the university to manifest civic leadership. In this regard, SEED Wayne's successes redound to the institution's credit. Nonetheless, challenges exist due to budgetary forces that push the university away from a civic identification and toward more privatized agendas and sources of support, and reinforce a cleaving of its purposes, such that those defined as academic receive institutional support while others sustain themselves through their own revenues. Thus even as the potential role of the public university to advance sustainability is becoming clearer, the university is becoming more constrained in its ability to act.

It is not impossible to envision the carving of special space within the university, one that is sympathetic to and able to accommodate the multiple sustainability bottom lines of the program and its integrative approaches. Nonetheless, such a unit would only serve to spotlight the more basic barriers within the institution to transform itself to more fully implement a broad-based sustainability agenda that cuts across all functions. Embracing energy and resource efficiency, for example, is

arguably an easier sustainability task. Preferentially supporting small, local agri-food and other businesses while also building their capacity to do business with the university, and supporting other social equity goals, on the other hand, asks more of the privatizing university than it can offer in an era of besieged budgets and self-supporting operations.

What is to be done? In the short term, the program would be helped by a high-level office — transcending individual colleges, that is — that spans various functions defined as academic and nonacademic, collaborates closely with faculty members and students with sustainability interests, and embraces the multiple bottom-line values of sustainability. Initially such an office would need to be supported by general funds but with a mandate to raise external support; it would need to create administrative procedures that short-circuit the current bureaucratic rabbit-hole to support innovative activities and partner with small-scale and local businesses. Over the longer term, there is no substitute for the development of a universitywide strategic sustainability agenda that carefully addresses the public university's civic purposes, aligns resources and activities accordingly, and involves campus and community stakeholders.

Because this program's efforts to institutionalize SFS are still ongoing, recommendations to leaders in other universities are necessarily tentative, and draw from the successes reported herein:

1. Use the possibility of external grant funding for SFS activities to build formal and informal support among diverse campus constituencies: administrators, faculty, student leaders. This process can create momentum even if initial fundraising efforts are unsuccessful.
2. Persist in approaches to integrate SFS into all the core functions of the university (teaching, research, engagement, and operations) even if linkages to one or two functions are stronger to begin with.
3. Support related initiatives suggested or led by students and colleagues or by community members in ways that incrementally expand the scope of SFS goals. Such support is crucial to growing an SFS commu-

nity and identifying fresh directions and related leadership.

4. Use SFS educational and research activities to create mutual campus-community benefits, including by tapping into local expertise for university-based courses and research, opening up courses — even if partially — to community members to promote co-learning and dialogue, and service-learning projects designed to answer SFS questions that are locally relevant.
5. Facilitate campus and community partnerships by developing operational frameworks that enable widespread participation, serve mutual organizational interests, and implement cost-sharing to the extent possible.

Campus sustainability initiatives are hard to implement in the best of times. While university administrators may currently perceive few degrees of freedom to operate, the time is also ripe for creative leadership.



References

- American Planning Association. (2007). *Policy guide on community and regional food planning*. Retrieved from <http://www.planning.org/policy/guides/adopted/food.htm>
- Aronowitz, S. (2000). *The knowledge factory: Dismantling the corporate university and creating true higher learning*. Boston: Beacon Press.
- Aronowitz, S., & Giroux, H. A. (2000). The corporate university and the politics of education. *The Educational Forum*, 64(4), 332-339. <http://dx.doi.org/10.1080/00131720008984778>
- Bosselmann, K. (2001). University and sustainability: Compatible agendas? *Educational Philosophy and Theory*, 33(2), 167-185. <http://dx.doi.org/10.1111/j.1469-5812.2001.tb00261.x>
- Bowen, H. R. (1997). *Investment in learning: The individual and social value of American higher education*. Baltimore, Maryland: The Johns Hopkins University Press.
- Boyer, E. L. (1996). The scholarship of engagement. *Journal of Public Service and Outreach*, 1(1), 11-20.
- Boyte, H., & Hollander, E. (1999). *Wingspread Declaration on renewing the civic mission of the American research university*. Boston, Massachusetts: Campus Contract.

- Retrieved from http://www.compact.org/wp-content/uploads/2009/04/wingspread_declaration.pdf
- Carnegie Foundation for the Advancement of Teaching and CIRCLE (Center for Information and Research on Civic Learning and Engagement). (2006, February). *Higher education: Civic mission and civic effects*. Stanford, California and College Park, Maryland: Authors.
- Coalition of Urban and Metropolitan Universities. (n.d.). About CUMU. Retrieved December 7, 2011, from <http://www.cumuonline.org/about.aspx>
- Coalition of Urban Serving Universities. (n.d.). Retrieved December 7, 2011, from <http://www.usucoalition.org/>
- Colby, A., Beaumont, E., Ehrlich, T., & Corngold, J. (2007). *Educating for democracy: Preparing undergraduates for responsible political engagement*. San Francisco: Jossey-Bass.
- Farm to College. (n.d.). *Program profiles*. Retrieved December 7, 2011, from <http://www.farmtocollege.org/survey#profiles>
- Giroux, H., & Giroux, S. S. (2004). *Take back higher education: Race, youth, and the crisis of democracy in the post civil rights era*. New York: Palgrave MacMillan.
- Jen, K. I., & Bowerman, B. (2011). *Fiscal year 2011-2012 higher education appropriations report. A report to the House and Senate Appropriations Subcommittees on Higher Education* (State of Michigan). Retrieved from <http://www.house.mi.gov/hfa/PDFs/hiedrpt2012.pdf>
- Kaysen, R. (2012, January 24). Public college, private dorm. *New York Times*, page B1.
- Kelderman, E. (2009, May 1). Public colleges consider privatization as a cure for the common recession. *The Chronicle of Higher Education*. <http://chronicle.com/article/Public-Colleges-Consider/44370/>
- Lidgren, A., Rodhe, H., & Huisingh, D. (2006). A systemic approach to incorporate sustainability into university courses and curricula. *Journal of Cleaner Production*, 14, 797-809.
- London, S. (2002). *The civic mission of higher education: From outreach to engagement*. Dayton, Ohio: Kettering Foundation. Retrieved from <http://www.scottlondon.com/reports/seminar2001.pdf>
- McInnis, D. (2009). Growing Detroit: SEED Wayne is giving a boost to the city's emerging agriculture movement. *Wayne State University Alumni Magazine*. Retrieved from http://www.alumni.wayne.edu/uploaded_pics/pdf/pdf-20091009114750.pdf
- Moore, J. (2005). Seven recommendations for creating sustainability education at the university. *International Journal of Sustainability in Higher Education*, 6(4), 326-39. <http://dx.doi.org/10.1108/14676370510623829>
- National Task Force on Civic Learning and Democratic Engagement, The. (2012). *A crucible moment: College learning and democracy's future*. Retrieved from http://www.civiclearning.org/SupportDocs/Crucible_508F.pdf
- Newman, F., Couturier, L., & Scurry, J. (2004). *The future of higher education: Rhetoric, reality, and the risks of the market*. San Francisco: Jossey-Bass.
- Orr, D. (1991). What is education for? Six myths about the foundations of modern education and six new principles to replace them. *In Context*, 27, 52. <http://www.context.org/ICLIB/IC27/Orr.htm>
- Parrish, C. (2011, April/May). Administrative salaries. *AAUP-AFT Newsbriefs*. Retrieved from http://www.aaupaft.org/pdf/Newsbriefs/NB_2011_AprilMay.pdf
- Pothukuchi, K. (2011). The Detroit Food System Report, 2009–2010. Detroit: Detroit Food Policy Council. Retrieved from http://www.clas.wayne.edu/multimedia/usercontent/File/SEED/2DetFoodReport_2009-10lores.pdf
- Schumpeter. (2011, December 10). University challenge [blog post]. *The Economist*. Retrieved from <http://www.economist.com/node/21541398>
- University Leaders for a Sustainable Future (Association of). (n.d.) About ULSF. Retrieved December 7, 2011, from http://www.ulsf.org/programs/talloires_history.html
- U.S. Department of Education. (2010). Secretary Arne Duncan's Remarks at "For Democracy's Future" Forum at the White House. Retrieved from <http://www.ed.gov/news/speeches/secretary-arne-duncans-remarks-democracys-future-forum-white-house>
- Wayne State University. (2010a, June 23). *Wayne State's 4.4 percent tuition increase is offset by strong financial aid packages* [press release]. Retrieved from

- <http://media.wayne.edu/2010/06/23/wayne-states-44-percent-tuition-increase-is>
- Wayne State University. (2010b). *FY 2011 auxiliary budgets summary*. Retrieved from <http://budget.wayne.edu/Presentation/FY2011%20Auxiliary%20Budget%20Summary.pdf>
- Wayne State University. (2011). *FY 2012 current funds budget*. Retrieved from <http://budget.wayne.edu/MajorPublications/BudgetBook/FY%202012%20Current%20Funds%20Budget.pdf>
- Wayne State University, Division of Research. (2010). Homegrown in Detroit. *New Science*, 18, 28-29.
- World Commission on Environment and Development [WCED]. (1987). *Our common future*. New York: United Nations. Retrieved from <http://www.un-documents.net/wced-ocf.htm>
- White, G. D. (Ed.). (2000). *Campus, Inc.: Corporate power in the ivory tower*. New York: Prometheus.
- Wright, T. S. A. (n.d.). *Definitions and frameworks for environmental sustainability in higher education*. Retrieved from http://www.ulsf.org/pdf/Wright_Declarations.pdf

Appendix

Table 1. SEED Wayne Activities on Campus and in the Community

Activities on Campus	Campus Participants	Community Partners
Three campus gardens (including winter production in low tunnels): a demonstration garden, an allotment garden, and an experimental garden	<ul style="list-style-type: none"> Approximately 36 students as volunteers and garden allottees. Large events such as build and takedown get more volunteers. 	<ul style="list-style-type: none"> Earthworks Urban Farm Greening of Detroit AVI Foodsystems, Inc.
WSU Farmers Market (22 weeks, June through October)	<ul style="list-style-type: none"> 16 vendors, including 9 Detroit-based vendors; 6 businesses owned by people of color, including 4 by African American individuals or groups; and 5 woman-owned businesses. Approximately 1,000 customers participate weekly Approximately 12 students as staff and volunteers over season 	<ul style="list-style-type: none"> Eastern Market Corporation (fiduciary agent for SNAP) AVI Foodsystems, Inc
Composting of kitchen wastes: Kitchen wastes at campus dining halls are composted in two containers, with compost used in campus gardens.	<ul style="list-style-type: none"> Approximately 4–6 students as volunteers 	<ul style="list-style-type: none"> AVI Foodsystems, Inc
Activities in the community		
Detroit FRESH: 18 corner stores, including liquor stores and gas stations. Activities include store-based technical assistance, linkages to produce distributors, and neighborhood outreach. Project also offers neighborhood healthy food fairs in partnership with participating stores.	<ul style="list-style-type: none"> Approximately 12 students as staff and volunteers 	<ul style="list-style-type: none"> Eastern Market Corporation Earthworks Urban Farm MOSES (coalition of faith-based organizations) Gleaners Community Food Bank
4,000 sq. ft. (372 sq. m) passive solar greenhouse at Earthworks Urban Farm on Detroit's eastside, for extended-season growing and agricultural entrepreneurship training.	<ul style="list-style-type: none"> No current student involvement 	<ul style="list-style-type: none"> Earthworks Urban Farm Michigan State University Student Organic Farm
Participation in Detroit Food Policy Council and other policy coalitions.	<ul style="list-style-type: none"> Student involvement in class or independent study projects designed to benefit Detroit Food Policy Council 	<ul style="list-style-type: none"> Several community-based organizations
Activities with campus and community components		
Farm/Garden to Cafeteria: Garden harvests are given to community programs and/or used in educational activities on campus	<ul style="list-style-type: none"> Approximately 6 students as volunteers 	<ul style="list-style-type: none"> AVI Foodsystems, Inc. Capuchin Soup Kitchen Nearby homeless shelters

(continues)

Field- and classroom-based educational activities related to SFS, including 'Cities and Food'	<ul style="list-style-type: none"> • Varies by semester 	<ul style="list-style-type: none"> • Varies by semester
Research collaborations with faculty members across campus and community partners	<ul style="list-style-type: none"> • Varies: 4–5 students involved as research assistants 	<ul style="list-style-type: none"> • Earthworks Urban Farm • Greening of Detroit • Detroit Food Policy Council • Detroit Economic Growth Corporation
Annual farm tour in which campus and community members visit farms selling at WSUFM and other regional farms	<ul style="list-style-type: none"> • Approximately 24 students participate in farm tour; 4–5 farms visited each trip 	<ul style="list-style-type: none"> • Detroit Black Community Food Security Network • Earthworks Urban Farm • Eastern Market Corporation
Annual Harvest Dinner with campus and community partners and supporters to celebrate the season's harvests and partnerships	<ul style="list-style-type: none"> • Between 75 and 100 students, employees, and community partners participate by invitation 	<ul style="list-style-type: none"> • AVI Foodsystems, Inc. • Earthworks Urban Farm • Detroit Black Community Food Security Network • Greening of Detroit
Quarterly newsletter sent to campus and community subscribers	<ul style="list-style-type: none"> • More than 2,000 recipients 	<ul style="list-style-type: none"> • None

Community engagement from the ground up: An interdisciplinary service-learning after-school garden program

Shari E. Miller,^{a,*} University of Georgia, School of Social Work

Jung Sun Lee,^b University of Georgia, Foods and Nutrition

David Berle,^c University of Georgia, Horticulture

Submitted 5 January 2012 / Revised 29 March 2012 / Accepted 16 April 2012 / Published online 19 June 2012

Citation: Miller, S. E., Lee, J. S., Berle, D. (2012). Community engagement from the ground up: An interdisciplinary service-learning after-school garden program. *Journal of Agriculture, Food Systems, and Community Development*, 2(3), 121–135.
<http://dx.doi.org/10.5304/jafscd.2012.023.013>

Copyright © 2012 by New Leaf Associates, Inc.

Abstract

Through the vehicle of community engagement, and with a commitment to ecological sustainability, the University of Georgia has made a series of efforts to support a growing local food movement through education, research, and service. This paper focuses on the development of a comprehensive after-school garden program with direct

links to the university via interdisciplinary service-learning mechanisms. The university is located in a county with one of the highest poverty rates in the nation. With a commitment to creating innovative, community-empowered approaches to addressing poverty and related food insecurity, an interdisciplinary group of university faculty, in collaboration with community partners, came together to develop a sustainable after-school garden program. Students from three disciplines (foods and nutrition, horticulture, and social work) are placed in after-school sites to work with elementary school students to establish, support, and grow food gardens. This paper discusses the development process of the program. Anecdotal successes, challenges, and opportunities between, within, and across various systems are explored.

Keywords

community engagement, food insecurity, Higher Education Challenge Grant, interdisciplinary

^{a,*} Shari E. Miller, Assistant Professor; BSW Program Director; School of Social Work; University of Georgia; 310 East Campus Road; Athens, GA 30602 USA; +1-706-542-2328; semiller@uga.edu

^b Jung Sun Lee, Assistant Professor; College of Family and Consumer Sciences; Foods and Nutrition; University of Georgia; 129 Barrow Hall; 115 DW Brooks Drive; Athens, GA 30602 USA; +1-706-542-6783; leejs@fcs.uga.edu

^c David Berle, Associate Professor; College of Agriculture and Environmental Sciences; Horticulture Department; University of Georgia; 1111 Plant Science Building; Athens, GA 30602 USA; +1-706-542-0771; dberle@uga.edu

collaboration, local food systems, school gardens, service-learning, sustainability

Introduction

As colleges and universities across the United States are growing their ecological sustainability efforts, interdisciplinary collaboration and community engagement are becoming increasingly central to higher education initiatives, particularly at public institutions (Jones, 2003). In fact, the Carnegie Foundation has recently established a designation for "Community Engaged Institutions," a designation attained by schools that meet a rigorous set of criteria related to their reach into the community. These trends point to a movement grounded in the need to develop better relationships with resources, including how they are used and distributed, as well as how they are conserved. Built into this shift is the potential for university collaborations that cross disciplinary divides and create space for innovation. This paper presents the development and piloting of a multilayered community engaged program with an eye toward sustainability, with roots in a large public university housed in a county with one of the highest poverty rates in the nation. The project involved interdisciplinary collaboration among university faculty and students, the university's Office of Service Learning (OSL), and community partnerships with the county public school system and related stakeholders. The project was geared at developing a comprehensive after-school garden program with direct links to the university via service-learning mechanisms.

Service-Learning

Service-learning has been and continues to be a key component of the "higher education civic engagement movement" (Phillips, 2007, p. 4). It serves as a vehicle for colleges and universities to enhance their public service and community engagement efforts; successful service-learning structures rely on collaborative relationships between university and community with equity built into partnerships (Vernon & Ward, 1999).

Because service-learning is a multidimensional process, establishing ways of measuring the process and its associated outcomes comprehensively has presented challenges for researchers (Gelmon,

2000). Measurement has tended to focus on one dimension of the process or on outcomes for one set of the multifaceted stakeholders (i.e., students, faculty, community partners, service recipients, etc.). According to an aggregate view of service-learning in the higher education literature, service-learning appears to be a highly effective experience for students, including outcomes associated with enhanced learning and academic success, personal and professional development, deepened sense of social responsibility, commitment to service, critical thinking, complexity of understanding, cognitive and moral development, and self-efficacy (Eyler, Giles, Stenson, & Gray, 2003). Service-learning outcomes for faculty include the positive increase in satisfaction related to student outcomes, enhancement of research agendas (Eyler et al.), and opportunities to apply theory and knowledge to solving local problems (Vernon & Ward, 1999). Though, faculty also sight lack of reward for efforts and lack of resources as barriers to service-learning efforts (Eyler et al.).

While service-learning is considered a primary means of creating a truly engaged campus, one that is not just physically located in a community but one that is "intimately connected to the public purposes and aspirations of community life itself" (Hollander, 1998, p. 3), very little research exists related to community partner outcomes (Vernon & Ward, 1999). The school garden program, by design, sought to fully integrate the community partner, and as such, research efforts will attempt to comprehensively evaluate outcomes across all stakeholders: students, faculty, program participants, and administrative and community structures.

School Gardens

According to Blair (2009), over the past two decades, school gardening has become a "national movement" that includes planned curricula and evaluative research in some states, and programs promoting school gardening in others. Generally, gardening curricula and programming tend to be designed primarily for elementary-age students, and the noted purposes of school garden efforts focus on academic, behavioral, recreational, social, political, and environmentally remediating variables (Blair). Given the nature of contemporary U.S.

culture, media, video games, and organized sports have largely replaced children's opportunities to explore, in an uncontained way, their natural environments (Moore, 1995). Children's environments are where they develop their imaginations and their sense of the world around them (Mergen, 2003). Media and formal playgrounds may delimit children's natural experiences, but "well-designed school gardens can readily improve on the complexity of that experience and provide the repetitive access, meanings, and associations needed to create a bond with a place" (Blair, 2009, p. 17).

According to quantitative research, some positive outcomes of school garden programs include increased knowledge about food systems (Graham, Feenstra, Evans, & Zidenberg-Cherr, 2004; Morris, Briggs, & Zidenberg-Cherr, 2000; Rahm, 2002), improvement in science achievement (Dirks & Orvis, 2005; Klemmer, Waliczek, & Zajicek, 2005; Mabie & Baker, 1996; Smith & Mostenbocker, 2005), and improvement in nutrition knowledge and preference for fruit and vegetables (Lineberger & Zajicek, 2000; McAleese & Rankin, 2007; Morris & Zidenberg-Cherr, 2002; Parmer, Salisbury-Glennon, Shannon, & Struempfer, 2009). According to Blair (2009), findings from the body of qualitative research capture some social outcomes and include students' excitement and motivation around gardening, being outside, and getting dirty; improved attitude about school and a sense of pride related to their gardens and harvest; and community-building components.

Most formal school garden efforts and their related research focus on the integration of the garden into the extant curricula, with a link to performance standards. The after-school garden program discussed in this paper was designed to create opportunities for students and the community to engage with the environment and to approach the idea of sustainability through activities and programs that were not confined to curricular requirements and performance standards, but instead linked to what comes after and outside the school day. In addition, the bulk of the extant literature focuses particularly on nutritional, health, and educational outcomes associated with school gardens, with little systematic research focused on

psychosocial and community outcomes. This after-school garden program was designed with the hope of extending the school garden into the community; the long-range goals of the program emphasize a shift in children's and the community's relationship to place, to the environment, to nutrition, to where food comes from, to self- and collective-efficacy, and to sustainability.

Context of Place

University of Georgia

The University of Georgia (UGA) was incorporated in 1785 and officially established in 1801 (Office of Public Affairs, n.d. a). According to its mission, UGA is "a land-grant and sea-grant university with statewide commitments and responsibilities, [and] is the state's oldest, most comprehensive, and most diversified institution of higher education. Its motto, 'to teach, to serve, and to inquire into the nature of things,' reflects the University's integral and unique role in the conservation and enhancement of the state's and nation's intellectual, cultural, and environmental heritage" (Office of Public Affairs, n.d. b, para. 1). Given its long history in and commitment to the state and local community, UGA has a longstanding relationship to the idea of "place."

As a land-grant institution, UGA extends its reach directly into the community of which it is a part, as well as outside those boundaries to the state of Georgia and beyond. UGA was recently "recognized by the Carnegie Foundation for its institutional commitment to community engagement through teaching, research, and public service with the Community Engagement Classification," making it one of only 311 institutions nationally to hold this distinction (Matthews, 2011). While the university has a clear and long-established relationship to its "place," that relationship and the university's efforts to address the needs of its place shift in response to prevailing social and ecological concerns.

Athens-Clarke County

UGA is housed in Athens-Clarke County (ACC); ACC is a unified city/county located in northeast Georgia, approximately 70 miles (113 km) east of

Atlanta. As of the 2010 U.S. census, ACC had a total of 116,714 residents. Approximately 62 percent of the ACC population is White, 26.6 percent is African American, and 10.4 percent is Hispanic or Latino (U.S. Census Bureau, n.d.). ACC is one of the poorest counties in the nation; the unemployment rate in ACC of 8.0 percent in September 2011 is lower than the Georgia and national averages (10.3 percent and 9.1 percent, respectively) (Georgia Department of Labor, n.d.). The ACC poverty rate of 36.7 percent, however, is more than twice the Georgia and national rates (17.9 percent and 15.3 percent, respectively) (U.S. Census Bureau, n.d.). Poverty differentially affects ACC residents with various racial and ethnic backgrounds at a variety of life stages. Those more likely to live in poverty than other groups in ACC include families with children under 18 years old (23.8 percent), especially families with female householders with children under five years of age (43.6 percent), as well as African Americans and Hispanics (U.S. Census Bureau). Children in particular are disproportionately affected by poverty in ACC; 40.9 percent of residents under 18 years old live in poverty compared to the state and national rates of 24.8 percent and 21.6 percent, respectively (U.S. Census Bureau).

The higher burden of poverty in ACC suggests that many residents are at risk of food insecurity, defined generally as “limited or uncertain availability of nutritionally adequate and safe foods or limited, or uncertain ability to acquire acceptable foods in socially acceptable ways” (Anderson, 1990, p.1576). More than one out of every five (21.0 percent) ACC residents are food insecure, higher in comparison to state and national averages (17.8 percent and 16.6 percent, respectively) (Feeding America, 2010). About 61 percent of ACC residents are eligible for the Supplemental Nutrition Assistance Program (SNAP, formerly food stamps) (Feeding America). The total SNAP benefits distributed to ACC residents were nearly USD15 million in 2008 (U.S. Department of Agriculture, n.d. a). Parallel to the trend in poverty, children in ACC are at a significantly higher risk of food insecurity (29.2 percent), and more than 70 percent of them are in households that are income-eligible for federal nutrition programs (Feeding America).

In 2008, nearly 70 percent of ACC school-age children were eligible for the free school lunch program and an additional 7 percent were eligible for the reduced school lunch program (U.S. Department of Agriculture, n.d. a). ACC residents received around 2.2 million meals from the Food Bank of Northeast Georgia (FBNG) in 2009 (Food Bank of Northeast Georgia, 2010).

Despite the attempts of the nation’s federal and emergency food assistance programs, food insecurity is an enduring and growing problem in ACC due to a history of persistent poverty, as well as the recent economic recession. The nation’s food assistance programs are grounded in a model of social welfare that seeks to fill gaps in peoples’ abilities to subsist on their own. FBNG (2010) reported a 30 percent increase from 2009 to 2010 in requests for emergency food boxes, and waiting lists for federally funded nutrition programs remain long. While the growing movement to expand local food systems in ACC is one focused on sustainability, there are questions about the degree to which the movement has effectively engaged those members of the community who are more likely to live in poverty and under food-insecure conditions.

The structural and institutional issues that have bearing on people’s access to affordable, healthy food may contribute to food insecurity. Based on a new definition of a food desert by the U.S. departments of Agriculture, Treasury, and Health and Human Services (i.e., a census tract with “a substantial share of residents who live in low-income areas that have low levels of access to a grocery store or healthy affordable food retail outlet” (U.S. Department of Agriculture, Agricultural Marketing Service, n.d., para. 1)), 11 out of 29 census tracts in ACC are classified as food deserts (U.S. Department of Agriculture, n.d. b). A total of 6,636 residents living in these census tracts in ACC have low access to a supermarket or large grocery store, and 65.4 percent of those are under the age of 18 (U.S. Department of Agriculture, n.d. b). Preliminary findings from the Athens Food Policy Council Food Store Audit Study (Lee, Bender, Kurtz, & Kim, in press) showed that many food stores in ACC did not carry a variety of healthy and afford-

able foods that would allow low-income residents to follow USDA's Thrifty Food Plan (TFP).¹ On average, only 67 percent of food items needed to prepare a TFP-based regional weekly menu was available in the selected supermarkets and grocery stores. The three most frequently missing food groups were fresh fruits and vegetables and frozen vegetables. The cost of purchasing groceries for the weekly TFP menu in ACC was 46.3 percent higher than that of the U.S. average in November 2008 (Lee et al., in press).

With rising food prices and the continuing economic recessions, food-insecure ACC residents, especially children, will face continued challenges around having consistent and dependable access to enough food for active and healthy living. The need is becoming increasingly urgent to identify sustainable, empowering strategies to increase access to healthy foods for people at all income levels, and to pay particular heed to reaching people who are living in poverty and are food insecure.

Local Food Movement at the UGA

At the beginning of the 2009–2010 academic year the OSL convened a series of meetings between community partners and university faculty and staff to better coordinate efforts to effect change in the local food system. The consensus from those meetings was to harness collective efforts to collaborate between the many departments on campus with an interest in local foods and the various community agencies with an agenda that includes sustainability, food, nutrition, or gardening. One result of those meetings was the decision to submit a proposal to the USDA National Institute of Food and Agriculture (NIFA) for a Higher Education Challenge Grant to develop a certificate in local food systems. The proposal included plans to establish a student-run demonstration garden in addition to an interdisciplinary certificate program.

¹ The USDA Thrifty Food Plan, which is the foundation for SNAP (<http://www.cnpp.usda.gov/USDAFoodPlans/CostofFood.htm>), provides a national standard for a nutritious and affordable diet specific to age and gender. See more at http://www.ers.usda.gov/Publications/ERR83/ERR83_AppC.pdf

A second proposal was submitted to NIFA to create a community garden network to pull together scattered efforts to support local gardening projects. Both grants were awarded in the fall of 2010.

The initial meetings and two grant projects resulted in the creation of a very active student-run garden project called UGArden. The garden covers approximately 1.5 acres (0.6 hectare) and, in addition to a large garden area, includes a composting program, a tilapia aquaponics demonstration, and a wood repurposing program. Three different courses are taught at the site. Approximately 4,000 pounds (1,814 kilograms) of fresh vegetables raised in the garden have been distributed during the 2012 growing season to local families in need through another student-run program called Campus Kitchen (a local chapter of a national organization of college students). The Campus Kitchen delivers meals and food on a regular basis to over 30 families in need through a local program called Grandparents Raising Grandchildren. The after-school gardening program emerged out of a shared commitment to address sustainability, poverty, and food insecurity among a variety of university faculty and community stakeholders.

Development of the After-School Garden Program

Interdisciplinary Collaboration

Given the size of UGA, with approximately 35,000 students, upwards of 2,800 faculty members, 3,900 administrative and other professionals (Office of Public Affairs, n.d. c), and the scope of university service activities and community engagement efforts, it stands to reason that a number of faculty, students, and staff share interests and commitments and may even be engaged in projects that are similar, yet are not aware of the efforts of others. One of the most powerful mechanisms for creating collaborative community engaged relationships between these many parties at UGA is the university's OSL. Through a variety of programs and efforts, including a Service-Learning Fellowship opportunity, the OSL works steadfastly to forge connections, promote collaboration, create positive, effective links between the university and

the community, and creatively work to locate funds to support programs.

The OSL introduced the first author, who is on faculty in the School of Social Work and was a Service-Learning Fellow with a nebulous idea, to the third author, a faculty member from the Horticulture department who was pivotal to many of UGA's previously mentioned local foods and community garden efforts. The first author's interest stemmed from a commitment to expanding social work's definition of the "environment" beyond the social/human-constructed world to include a more ecologically just perspective that recognizes humans' relationship to nature, and focuses in on sustainability. In this vein, she was interested in creating a course for social work students that builds on social work's commitment to social justice, and to expand that definition to one that incorporates an environmentally and eventually ecologically just framework. It was her desire to do this with a built-in service-learning component that moved social work students out into the field in a way that was different from their required field internships in social service agencies. The objectives were to have social work students work with children in a school garden environment to enhance their understanding of the role of nature and ecology in the lives of their clients, to focus on issues of poverty and food insecurity with the county's children and families, to help children develop knowledge about where their food comes from and the role they can play in more sustainably producing and acquiring it, and to consider ways of engaging community members in these efforts. In developing an interdisciplinary collaboration with a faculty member from the Horticulture department, whose commitment to sustainable agriculture, local foods, and social justice led him to build and foster community garden efforts in a variety of areas in ACC, a nebulous idea became clearer and more grounded. With an interest in further building the nutrition and food security facets of the program, the second author from Foods and Nutrition was invited to collaborate, and eagerly agreed.

Community Partners

In the interest of inclusion, many people from multiple university departments (e.g., agricultural

extension, education, foods and nutrition, geography, horticulture, public health, landscape and design, and social work to name some) and community stakeholders (e.g., ACC public school administrators, local non-profit administrators, active parent/teacher organization members) were invited to come together over the course of a semester and brainstorm about what school garden efforts were already being made and what might be useful next steps. The meetings were fruitful and yielded a strong commitment and a good deal of expressed interest from the ACC school officials to support the interdisciplinary efforts to create a systematic school garden program.

Out of these meetings came a clear sense that the most effective way to begin to establish this initiative would be through after-school programs. Given a series of identified obstacles, including curricular performance standards and resource issues, there was a good deal of support for the idea that an after-school program would have different kinds of freedoms than would a program initially structured to fit within extant science-based curriculum standards. In the interest of moving forward and to learn through doing, the collaborating faculty and community partners agreed to begin there, with a long-range plan to establish a garden-based structure and culture that potentially could be incorporated into the classroom as well. While meeting regularly was eminently helpful to the process, and essential to making key decisions, it became clear that in order to move forward, action would need to be taken. It was in that vein that the three faculty members who have written this paper decided to "dive in" and pilot some version of the program.

Pilot Phases I and II

Table 1 in the appendix shows the logic model that guided the development of the after-school garden program in the ACC. The program was initially piloted during spring 2011 semester, and the secondary pilot phase was completed during the fall 2011 semester. The following section describes the process of developing the program. The process of developing this program continues to be iterative, and in many ways is context-contingent; it is our hope that the following sections, along with

the logic model, can serve as a guide and/or point of departure for others interested in developing similar programs at their colleges and universities.

Establishing Sites

In order to begin the program initially, the authors agreed to select five after-school locations. We used the following criteria to determine with which locations to pilot the program: (1) Does the school or site offer after-school programming? (2) Does the school or site have a Parent Teacher Organization (PTO), and to what degree is that structure active? (3) Does the school or site have a high percentage of children participating in free or reduced National School Lunch Program? (4) Does the school or site have any viable gardening space and/or any existing garden or garden structures? (5) Is the school or site accessible for UGA students who do not have cars and/or may not want to drive? (6) Do key school or site administrators have an interest in and willingness to participate in this program?

We used the above criteria in order to determine practical viability, and also to target schools or sites with the greatest levels of need. Once we ruled out schools without after-school programs, our next priority was to locate schools with the *least* active, *least* resource-rich, or nonexistent, Parent Teacher Organizations (PTO), with the idea being that the school garden program could provide resources, and if a PTO structure was not in place, it was highly likely that the families of the children at those schools were themselves functioning with fewer resources. Similarly, we attempted to target schools in the county that had higher percentages of children receiving supplemental food benefits. Then we considered the logistics regarding outdoor space and gardening structure and UGA student transportation and access. Lastly, and in some ways most instrumentally, we had to determine whether or not the administrators at particular schools were willing to consider our piloting the program with them. Working relationships between faculty and/or the OSL already existed with the administrators of some elementary schools, which helped to facilitate initial contact. In the event that working relationships did not already exist, faculty made contact and attempted to establish them. After a

series of phone calls, emails, and meetings, we had arrived at our first set of five schools. For the second round, some of the sites remained as part of the pilot and others were substituted in order to troubleshoot, in some cases, and in other cases, in order to work toward expanding the program beyond five sites. For the spring semester, an after-school program at a local chapter of the Boys and Girls Club was added. The eventual goal is for the program to be running in all after-school sites in ACC, including public schools and community-based structures.

Structure of the Service-Learning Interdisciplinary Program

Students from the three disciplines (social work, horticulture, and foods and nutrition) were recruited to participate in the pilot. Their participation would involve a weekly three-hour service commitment, participation in weekly in-person interdisciplinary discussion groups, and use of an online learning platform to support reflective assignments. Students in social work would be enrolled in the new course being developed related to social work and eco-conscious, strengths-based practice, and students in horticulture and foods and nutrition would enroll in an existing Project FOCUS (Fostering Our Community's Understanding of Science) course designed to provide science teaching opportunities for non-education majors. The two courses entailed the same service commitment, but reflective assignments differed. The interdisciplinary service-learning component was designed to build on and draw from the skills and knowledge the students from each discipline contributed, but also to challenge students to bring different perspectives together to achieve common objectives. For both phases of the pilot, UGA students have contributed a great deal to the development of the program itself and to the development of the interdisciplinary components of the course. A series of intended and unintended learning opportunities were borne out of this collaborative structure, which will be discussed in greater detail in a later section of the paper.

Recruiting UGA Student Participants

Given the "dive-in" nature of the first pilot, time

was relatively short, so faculty worked quickly and steadfastly to promote this opportunity to students in their respective disciplines. Students were contacted via departmental student listservs and provided with information about the opportunity to participate in a new interdisciplinary after-school garden program. Student responses to the initial recruitment efforts were profoundly positive; many more students were interested in participating than the capacity of the pilot would allow. Each student was contacted individually to determine commitment, availability, fit, and degree of interest. Given the substantial time commitment in terms of service hours, and the particular time-of-day requirements of the after-school structure, students' course schedules in some cases were prohibitive. Once the 15 students (five students from each of the three disciplines) were identified, their schedules were gathered. Out of the complex matrix of their available times, teams of three students each were established and assigned to a particular location. Students completed all necessary paperwork to receive legal clearance to be present on public school grounds and to work directly with elementary school students. For the second round of the pilot, students again were recruited via listservs, but word of mouth fueled additional student interest; based on the number of sites and the logistics of scheduling, 12 students (four students from each of the three disciplines) participated in the second pilot semester.

Structure of the Program

Each team of UGA students during both pilot semesters began working with groups of elementary school children enrolled in the after-school program at its assigned site immediately upon receiving clearance. With monetary support from the OSL, and through supplies and funds gathered through the horticulture department, raised beds were installed at all locations, or in the cases where pre-existing garden structures were already in place, they were checked to determine what was needed to make them ready for planting. The third author was instrumental in making supplies available and in doing some of the necessary preparatory work to get garden beds in place and ready. Each team of students was tasked

with creating programs, "lessons," and activities to begin to engage their groups of after-school participants around working in the garden.

During the first two weeks of the semester, the weekly interdisciplinary group discussion meetings were used to ensure that students from all three disciplines had a basic grasp of group dynamics and engaging in group work (facilitated by the social work faculty member) both in terms of their interdisciplinary teams and in terms of facilitating work with the children; basic gardening and horticulture (facilitated by the horticulture faculty member); and a sense of the local food environment, poverty, food insecurity (facilitated by the foods and nutrition faculty member); and social justice, environmental justice, and critical consciousness (facilitated by the social work faculty member). Weekly sessions were then used to troubleshoot, develop skills and techniques, share ideas, grapple with challenges, reflect on the process and the program, and to learn through a transdisciplinary lens. Students wrote weekly reflections based on the particular prompts provided by their instructor. Service-learning occurs for students at the intersection of service and reflection, and serves to enhance what they can offer to their community partners.

Obstacles and Opportunities

When any one institutional structure engages with another, obstacles and challenges invariably emerge. In the case of the after-school garden program, a number of institutional structures of varying size and scope are involved, creating challenges at multiple system levels. Obstacles also create opportunities for creative engagement, so while challenging, they are not necessarily insurmountable. In the interest of fully presenting the process of program development here, a discussion of obstacles, positive experiences, and opportunities follows. Though the development of this kind of program is bound by context and will vary from place to place, some of the obstacles and opportunities will likely be reflected in others' experiences of attempting to create similar programs. The following discussion offers up one version of an approach to grappling with some of the potential challenges.

Macro Level: Institutional

At the university institutional level, a series of structural or logistical challenges exist around creating interdisciplinary learning vehicles, including structures for creating courses themselves and in which department they are technically housed, days and times when other required student courses are scheduled, and procedures for determining teaching assignments, to name a few. In order to address these, the faculty sought support from their respective schools and departments, chose to allot some of their otherwise unscheduled time to creating the program and piloting the course, and continue to advocate for a shift in institutional structures that would make this kind of inter- or transdisciplinary work easier to implement. This continues to be a challenge and one that is likely endemic to many other colleges and universities. For the three involved faculty members, positive experiences have included enhancements in their teaching, both in this particular course and in others. The transdisciplinary nature of this course provided opportunities for faculty to run discussion groups collaboratively with students, garner approaches and methods typically outside their disciplines, and create positive and creative relationships. This positive experience has also contributed to enhancements in research opportunities. However, faculty have and continue to contribute substantial amounts of their time to developing this program and related courses; it is essential to make concrete plans for time management and delegation of responsibilities to support an effort of this scope.

Macro Level: Community/Organization

At a community/organizational level, a series of different school sites, each with its own administrative structures and housed under the larger mantle of the ACC school system itself, is involved, creating the need to understand many different organizational cultures, foster a variety of professional relationships, and be flexible to accommodate differences. This set of challenges presents opportunities for students to learn first-hand about macro structures and about how they affect direct experiences. This may contribute to how those students approach their work lives upon

graduation, and may contribute to their abilities to effectively navigate systems and contribute positively to how those systems function. Some students indicated frustration with the organizational obstacles. For example, students cited concerns about the supplies they used for the garden disappearing and/or being inadequately stored, and having limited access to indoor space when necessary to work with the children. Others expressed frustration with constraints that emerged out of disjointed communication; the absence of a clear chain of communication and shared information often created challenges for the students. However, students in written reflections and in-person discussions expressed a great deal of satisfaction and a seeming sense of self-efficacy when they grappled with these challenges as a team and with faculty, and established ways to address them. As new sites are added we continue to recognize this challenge and have discussions among ourselves and with our students about how best to manage these varied dynamics, and about how to establish relationships that foster effective communication.

Mezzo Level

Some obstacles may present at a mezzo level, meaning among the interdisciplinary teams of students themselves: negotiating time challenges, differences in their disciplines and how they approach learning, and initial ambiguity around their roles in the group. It is through negotiating these challenges that students have the opportunity to maximize their learning and to expand their worldviews. The course instructors put mechanisms into place to help students foster functional group dynamics and to negotiate conflict if or when it arises. Within the first two weeks of the semester, the social work faculty member facilitated a workshop for the students focused on group development, group dynamics, and cohesion. Students were asked to apply principles learned not only to the groups they would be developing among the children, but to their own interdisciplinary task groups. Throughout the semester, students referred back to some of these principles in their evolving written reflections and in-person discussions around both their task groups and the

groups they established with the children. They had a common glossary of terms and ideas to apply that appeared to facilitate effective negotiation of challenges. Also, students referred to how much they learned from and with each other, and how their respective roles became increasingly clear over the course of their semester working together.

Opportunities

While there are a number of challenges to be expected in creating a program that incorporates so many stakeholders, there is an equally expansive potential for successes. Based on the first complete semester pilot and an almost complete second semester pilot, initial process evaluations suggest that stated student learning objectives across disciplines appear to be well met for all participants, based on their written reflections and in-person discussions. Students met objectives in their respective disciplines, but their overall learning was enhanced substantially by the interdisciplinary structure of the service itself and of the discussion groups. Students grew in terms of disciplinary content knowledge, but even more so in terms of their process knowledge derived through both the interdisciplinary collaboration and the exposure to and work with the children in their groups and with community stakeholders. Students from each discipline learned from the others in terms of ideas and approaches, and also learned a great deal about how different perspectives serve to complement each other and create opportunities for broader, sustainable impact. Finally, in addition to the stated or intended objectives, students made outstanding contributions to the development of the program and the course itself. Through the opportunity to contribute to the development of both, students' level of commitment seemed to increase and their sense of self-efficacy, empowerment, and awareness of how to build relationships and programs appeared to grow as well.

While future research will provide a more systematic understanding of the efficacy of the program and its outcomes, anecdotally it appears that some benefits to community partners (the after-school sites involved) have also emerged. There appear to be direct benefits to the children who have participated related to food and nutrition

awareness, relationship to gardening and sustainable food production, relationship to nature, and self-efficacy. Early on in the semester, one team of UGA students engaged their child participants in an exercise around identifying their favorite fruits and vegetables. During this activity one child asked, "are Twizzlers a fruit"? The UGA students reported "shock" when they heard this, along with having an "epiphany" about the potential distortion of knowledge around where food comes from. This event provided opportunities for the UGA students to challenge themselves to respond in a way that helped the child to expand her understanding of where food comes from, and challenged them to become much more critically conscious about the children and their access to and awareness about nutritional food. Over the course of the semester, UGA students also created opportunities for the children to sample fruits and vegetables, some picked directly from the gardens they were growing, and others purchased because the season sometimes created lags in access to their own harvest. Children responded cautiously at first when invited to try "strange" or "weird" fruits and vegetables. Over the course of the semester, they clamored for tastings and cooking demonstrations and were willing to try everything offered, from carrots to radishes to spinach (which they'd pick right out of the ground and eat with gusto), to collard greens, to name a few. Benefits to the schools beyond those directly related to the children are also emerging: participating sites now have functioning gardens, and in all cases those gardens are active and tended to; they have new after-school resources upon which to rely in terms of people and activities; and the foundation has been laid for more systematic programming and resource allocation.


Participating faculty have benefitted substantially through the power of collaboration; what one person could not have accomplished single-handedly, three have managed to accomplish fairly quickly. This is not to say the program is developed fully and that there is not a great deal more work to be done, but it is to say that the strength that emerges out of positively driven collaborative efforts is not to be underestimated. The three faculty have plans for continued collaboration in

terms of further program development, teaching, and inter-disciplinary research. Targets for further developing the program include installing a functional school garden at all public schools in ACC, and at community organizations that provide after-school programming to children whose schools do not offer it. With an expanded program there are plans to build a curriculum and create additional service-learning opportunities for students in the currently participating disciplines, and to add opportunities for students in other disciplines. Additional plans involve the systematic inclusion of community members in support of the school garden effort, including intergenerational mentoring. Specific plans for future research include quantitative and qualitative data collection to explore UGA student learning experiences and outcomes; child knowledge, and social and behavioral changes; parent knowledge, attitude, and food behavior outcomes; and school administrator perceptions of organizational outcomes.

Plans for Future Research

Because of the interdisciplinary nature of this program, plans for evaluating outcomes are also interdisciplinary. One of the gaps in the extant body of literature related to school gardens resonates around psychosocial outcomes for individual participants and also for family and community. As this program develops further, plans for research include measurement of UGA student learning outcomes as noted above. Students who participate in the program will complete pre- and post-surveys that include Likert-type questions as well as open-ended questions designed to assess any changes in their interests, knowledge, values, and perspectives. Additional plans for research focus on health and nutrition outcomes for child participants (e.g., preference for fruit and vegetables); psychosocial outcomes for child participants, including relationship to nature and sense of self-efficacy (among other outcomes); community outcomes, including a focus on collective efficacy; and outcomes for the after-school programs, including degree to which the program offset resource issues, enhanced overall after-school programming, affected a shift in the culture of the organizational environment, and contributed to change in

relationship between the program and the community.

As UGA continues to serve its land-grant mission and accommodates to inventive forms of community engagement, more and more efforts are being made to incorporate and support ecologically sustainable approaches. This ethos creates space for innovative work that transcends a variety of boundaries, including those between disciplines and structures and those between university and community. The after-school garden program embraces this notion of transcending those boundaries to optimize strengths and resources, and to contribute to creative efforts to address food insecurity and community empowerment. 

References

- Anderson, S. A. (1990). Core indicators of nutritional state for difficult-to-sample populations. *Journal of Nutrition*, 120, 1559–1600.
- Blair, D. (2009). The child in the garden: An evaluative review of the benefits of school gardening. *The Journal of Environmental Education*, 40(2), 15–38. <http://dx.doi.org/10.3200/JOEE.40.2.15-38>
- Dirks, A. E., & Orvis, K. (2005). An evaluation of the junior master gardener program in third grade classrooms. *HortTechnology*, 15, 443–447.
- Eyler, J. S., Giles, D. E., Jr., Stenson, C. M., & Gray, C. J. (2003). At a glance: What we know about the effects of service-learning on college students, faculty, institutions, and communities, 1993-2000, third edition. In Campus Compact, *Introduction to service-learning toolkit: Readings and resources for faculty* (2nd ed.) (pp. 15–19). Providence, Rhode Island: Campus Compact.
- Feeding America. (2010). *Hunger study 2010*. Retrieved from <http://feedingamerica.org/hunger-in-america/hunger-studies/hunger-study-2010.aspx>
- Food Bank of Northeast Georgia. (2010). *Food for thought: 2010 annual report*. Athens, Georgia: Author.
- Gelmon, S. B. (2000). How do we know that our work makes a difference? Assessment strategies for service-learning and civic engagement. *Metropolitan Universities: An International Forum*, 11(2), 28–39.
- Georgia Department of Labor. (n.d.). *Area unemployment rate and labor force estimates*. Retrieved November 3, 2011, from <http://www.dol.state.ga.us/pr/laborforce.htm>

- Graham, H., Feenstra, G., Evans, A. M., & Zidenberg-Cherr, S. (2004). Davis school program supports life-long healthy eating habits in children. *California Agriculture*, 58, 200–205.
<http://dx.doi.org/10.3733/ca.v058n04p200>
- Hollander, E. (1998). Picturing the engaged campus. In M. Rothman (Ed.), *Service matters*. Providence, Rhode Island: Campus Compact.
- Jones, S. (2003). *Introduction to the second edition*. In Campus Contact, *Introduction to service-learning toolkit: Readings and resources for faculty* (2nd ed.) (pp. 1–4). Providence, Rhode Island: Campus Compact.
- Klemmer, C. D., Waliczek, T. M., & Zajicek, J. M. (2005). Growing minds: The effect of a school gardening program on the science achievement of elementary students. *HortTechnology*, 15, 448–452.
- Lee, J. S., Bender, A., Kurtz, H. E., & Kim, H. H. (In press). Analyzing food store survey data using Geographic Information Systems (GIS). In American Dietetic Association, Hunger and Environmental Nutrition and Dietetic Educators of Practitioners practice groups (Eds.), *Teaching food systems and sustainability in nutrition education and dietetic training: Lessons for educators*.
- Lineberger, S. E., & Zajicek, J. M. (2000). School gardens: Can a hands-on teaching tool affect students' attitudes and behaviors regarding fruits and vegetables? *HortTechnology*, 10, 593–597.
- Mabie, R., & Baker, M. (1996). The influence of experiential instruction on urban elementary students' knowledge of the food and fiber system. *Journal of Extension*, 34(96), 1–4.
- McAleese, J. D., & Rankin, L. L. (2007). Garden-based nutrition education affects fruit and vegetable consumption in sixth-grade adolescents. *Journal of the American Dietetic Association*, 107, 662–665.
<http://dx.doi.org/10.1016/j.jada.2007.01.015>
- Matthews, P. (2011, January 7). UGA recognized for community engagement by Carnegie Foundation [Web log post]. Retrieved from <http://www.servicelearning.uga.edu/blog/2011/01/07/uga-recognized-for-community-engagement-by-carnegie-foundation/>
- Mergen, B. (2003). Review essay: Children and nature in history. *Environmental History*, 8, 643–669.
<http://dx.doi.org/10.2307/3985888>
- Moore, R. (1995). Growing foods for growing minds: Integrating gardening and nutrition education into the total curriculum. *Children's Environments*, 12(2), 134–142.
- Morris, J. L., Briggs, M., & Zidenberg-Cherr, S. (2000). School-based gardens can teach kids healthier eating habits. *California Agriculture*, 54(5), 40–46.
<http://dx.doi.org/10.3733/ca.v054n05p40>
- Morris, J. L., & Zidenberg-Cherr, S. (2002). Garden-enhanced nutrition education curriculum improves fourth-grade school children's knowledge of nutrition and preferences for some vegetables. *Journal of the American Dietetic Association*, 102(1), 91–93. [http://dx.doi.org/10.1016/S0002-8223\(02\)90027-1](http://dx.doi.org/10.1016/S0002-8223(02)90027-1)
- Office of Public Affairs, University of Georgia. (n.d. a). *History of UGA*. Retrieved November 1, 2011, from <http://www.uga.edu/profile/history>
- Office of Public Affairs, University of Georgia. (n.d. b). *The mission of the University of Georgia*. Retrieved November 1, 2011, from <http://www.uga.edu/profile/mission/>
- Office of Public Affairs, University of Georgia (n.d. c). *UGA by the numbers*. Retrieved November 1, 2011, from <http://www.uga.edu/profile/facts/>
- Parmer, S. M., Salisbury-Glennon, J., Shannon, D., & Struempfer, B. (2009). School gardens: An experiential learning approach for a nutrition education program to increase fruit and vegetable knowledge, preference, and consumption among second-grade students. *Journal of Nutrition Education and Behavior*, 41, 212–217.
<http://dx.doi.org/10.1016/j.jneb.2008.06.002>
- Phillips, A. (2007). Service learning and social work education: A natural but tenuous connection. In M. Nadel, V. Majewski, & M. Sullivan-Cosetti (Eds.), *Social work and service learning: Partnerships for social justice* (pp. 3–19). Lanham, Maryland: Rowan & Littlefield.
- Rahm, J. (2002). Emergent learning opportunities in an inner-city youth gardening program. *Journal of Research in Science Teaching*, 39, 164–184.
<http://dx.doi.org/10.1002/tea.10015>
- Smith, L. L., & Mostenbocker, C. E. (2005). Impact of hands-on science through school gardening in Louisiana public elementary schools. *HortTechnology*, 15, 439–443.

- U.S. Census Bureau. (n.d.). *America FactFinder*. Retrieved October 4, 2011, from <http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?ref=geo&refresh=t>
- U.S. Department of Agriculture. (n.d. a). *Your food environment atlas*. Retrieved November 3, 2011, from <http://www.ers.usda.gov/foodatlas/>
- U.S. Department of Agriculture. (n.d. b). *Food desert locator*. Retrieved November 3, 2011, from <http://www.ers.usda.gov/data/fooddesert/>
- U.S. Department of Agriculture, Agriculture Marketing Service. (n.d.). *Food Deserts*. Retrieved from <http://apps.ams.usda.gov/fooddeserts/foodDeserts.aspx>
- Vernon, A. & Ward, K. (1999). Campus and community partnerships: Assessing impacts and strengthening connections. *Michigan Journal of Community Service Learning*, 6(1), 30–37.
<http://hdl.handle.net/2027/spo.3239521.0006.103>

Table 1. Logic Model for the After-School Garden Program in Athens-Clarke County, Georgia (ACC)

Situation: With rising food prices and economic recessions, food-insecure ACC residents, especially children, will face continued challenges around having consistent and dependable access to enough food for active and healthy living. The need is becoming increasingly urgent to identify sustainable, empowering strategies to increase access to healthy foods for people at all income levels.

Inputs	Activities	Outputs	Outcomes		
			Initial	Intermediate	Longer Term
Materials, resources, personnel – what is needed to develop and run the program	What the program does to fulfill its mission – what is done	Direct products of the activities – what is received	Changes in participants that are a direct, immediate result of participation in the program	Changes in participants that occur as a result of initial outcomes	Changes in participants that can only be assessed after some time has passed
<ul style="list-style-type: none"> • Schools with after-school programs and willingness to participate • School gardens or outdoor space to build garden structures • Gardening supplies and tools • Nutrition education materials • Other supplies for after-school activities • Transportation to schools • Some funding or potential for funding 	<ul style="list-style-type: none"> • Faculty establishes contact with schools • Faculty establishes the program site • Faculty recruit UGA students from involved departments • Faculty and students develop the content and structure of interdisciplinary after-school program activities focused on gardening and nutrition • UGA students carry out the program • Faculty and UGA students evaluate the process and outcome of the program 	<ul style="list-style-type: none"> • Total number of participating UGA students • Total number of participating schools • Total number of after-school program participants across the semester • Types of content and structure of after-school program activities • Total number of activities used • Quantity and quality of contact and interaction among UGA students, after-school program participants, school administrators, and parents 	<ul style="list-style-type: none"> • Increase in the number of participating schools, after-school participants, and UGA students • Improved content and structure of after-school program activities • Increased quantity and quality of contact and interaction among UGA students, after-school program participants, school administrators, and parents • Increase in the awareness, knowledge, and attitudes of food systems, gardening, food, nutrition, sustainability, and self-efficacy among participating UGA 	<ul style="list-style-type: none"> • Increase in the number of participating schools, after-school participants, and UGA students • Improved content and structure of after-school program activities • Increased quantity and quality of contact and interaction among UGA students, after-school program participants, school administrators, and parents • Increase in the awareness, knowledge and, attitudes of food systems, gardening, food, nutrition, sustainability, and self-efficacy among participating UGA 	<ul style="list-style-type: none"> • Maintenance of the number of participating schools, after-school participants, and UGA students • Maintenance of the content and structure of after-school program activities • Maintenance of the quantity and quality of contact and interaction among UGA students, after-school program participants, school administrators, and parents and community • Maintenance of the awareness, knowledge and, attitudes of food systems, gardening, food, nutrition, sustainability, and self-
<ul style="list-style-type: none"> • UGA students from involved departments • Faculty advisors • School administrators • After-school coordinators in the 	<ul style="list-style-type: none"> • After-school program participants learn about food systems, 	<ul style="list-style-type: none"> • Changes in the knowledge, attitude, 			

Outcomes					
Inputs	Activities	Outputs	Initial	Intermediate	Longer Term
schools • Parent-Teacher Organizations (PTOs) • UGA Office of Service Learning (OSL) <hr/> • After-school program participants	gardening, food, nutrition, sustainability, and self-efficacy • Parents and community are invited to participate through evening programming	and belief about environment, gardening, food, nutrition, sustainability, and self-efficacy among participating UGA students, after-school participants, school administrators, and parents and community	students, after-school participants, school administrator, and parents and community • Identify sustainable, empowering strategies to increase access to healthy foods in ACC	students, after-school participants, school administrator, and parents and community • Develop sustainable, empowering strategies to increase access to healthy foods in ACC	efficacy among participating UGA students, after-school participants, school administrator, and parents and the community • Maintenance of sustainable, empowering strategies to increase access to healthy foods in ACC.

Critical reflections on experiential learning for food justice

Leslie Gray,^{a,*} Joanna Johnson,^b Nicole Latham,^c Michelle Tang,^d Santa Clara University

Ann Thomas,^e University of California at Santa Cruz

Submitted 1 December 2011 / Revised 13 February and 9 April 2012 / Accepted 24 May 2012 / Published online 19 June 2012

Citation: Gray, L., Johnson, J., Latham, N., Tang, M., & Thomas, A. (2012). Critical reflections on experiential learning for food justice. *Journal of Agriculture, Food Systems, and Community Development*, 2(3), 137–147.
<http://dx.doi.org/10.5304/jafscd.2012.023.014>

Copyright © 2012 by New Leaf Associates, Inc.

Abstract

This essay will reflect on Santa Clara University's (SCU) forays into experiential learning around food

^{a,*} *Corresponding author:* Leslie Gray, Executive Director, Environmental Studies Institute, Santa Clara University; 874 Lafayette Street; Santa Clara, California 95053 USA; +1-408-551-7054; lcgray@scu.edu

^b Joanna Johnson, Director, Bronco Urban Gardens Program, Environmental Studies Institute, Santa Clara University; Santa Clara, California USA; +1-408-551-3000 x6453; jljohnson@scu.edu

^c Nicole Latham, AmeriCorps Volunteer, Bronco Urban Gardens Program, Environmental Studies Institute, Santa Clara University; Santa Clara, California USA; +1-408-551-7086; nicole.i.latham@gmail.com

^d Michelle Tang, AmeriCorps Volunteer, Bronco Urban Gardens Program, Environmental Studies Institute, Santa Clara University; Santa Clara, California USA; +1-408-551-7086; mtang@scu.edu

^e Ann Thomas, Environmental Studies Program, University of California at Santa Cruz; Santa Cruz, California 95064 USA; +1-925-878-1567; annthomas@gmail.com

justice through the Bronco Urban Gardens (BUG) program. BUG works with urban schools and a community center in San José, California, using a garden-based education approach. This program emerged out of our student garden, The Forge. University student farms and gardens provide opportunities for students to learn how to grow, manage, and market food. At Santa Clara University, our half-acre (0.2 hectare) garden plays that role. However, because of our institution's commitment to social justice and a strong network of community partners, our campus garden has blossomed into a larger food justice outreach program. We will first discuss the motivation behind experiential learning for social justice and reflect on its connection to food justice. We then focus on several observations, challenges, and questions that have emerged out of our BUG experiences. Some of those observations involve the challenge of working with students and community partners where the interests of both groups must be served. We also explore what food justice means in this

context, and what it means when a program expands beyond the committed few to an entire student body. By engaging in food justice with low-income communities of color through innovative campus programs such as BUG, our students are likely to see the food system from a very different vantage point than if they stayed on campus, resulting in deep learning experiences and also benefits for communities.

Keywords

experiential learning, food justice, garden-based education, university agricultural education, urban agriculture

Introduction

University student farms and gardens provide opportunities for students to learn how to grow, manage, and market food. They also provide venues for students to reflect on sustainable agriculture and their own nested food systems (local, regional, national, international), often resulting in community action around sustainable foods both on and off campus. At Santa Clara University (SCU), our half acre (0.2 hectare) garden plays that role. This garden, dubbed the “Forge” as a nod to its history as the university’s original blacksmithing site, provides a space to grow food as well as conduct trainings, classes and student project. Furthermore, because of our institution’s commitment to social justice and a strong network of community partners, our campus garden has blossomed into a larger food justice outreach program. Out of the Forge garden, we have developed the Bronco Urban Gardens (BUG) program, which works with urban schools and a community center in downtown San José, California. Because of the new SCU core curriculum requirement of experiential learning for social justice, our program has an added goal: providing our undergraduate students with community placements around environmental and food justice. Our program staff and faculty use food justice and gardening to engage students critically with social justice issues. Gottlieb and Joshi (2010, p. 6) characterize food justice as seeking to ensure “that the benefits and risks of where, what, and how food is grown and

produced, transported and distributed, and accessed and eaten are shared fairly.” Food justice is a compelling concept that “resonates with many groups and can be invoked to expand the support base for bringing about community change and a different kind of food system” (Gottlieb & Joshi, 2010, p. 5). By engaging in food justice with low-income communities of color through innovative campus programs such as BUG, our students are likely to see the food system from a very different vantage point than if they had stayed on campus, resulting in deep learning experiences and also benefits for communities.

The BUG program is part of a larger partnership, the Silicon Valley Health Corps, a Santa Clara County food justice collaborative that assigns AmeriCorps volunteers to 12 local organizations. The goal of the Silicon Valley Health Corps is to bring fresh fruits and vegetables and education to low-income residents of Santa Clara County. Santa Clara County, the heart of Silicon Valley, is generally considered to be an area of relative abundance and wealth, yet it also includes significant pockets of poverty. California Food Policy Advocates (2012) estimates that 33.5 percent of Santa Clara County adults lived in food-insecure households in 2010. Many low-income communities in Santa Clara County have little walkable access to grocery stores, few farmers’ markets or community supported agriculture pick-up points, and a preponderance of unhealthy resources such as fast-food outlets and convenience stores (Public Health Law & Policy [PHLP], 2010). The neighborhoods that BUG works in fit this pattern. Alma, Gardner, and Washington neighborhoods, informally known as “the triangle” where three opposing gang territories meet, are some of the lowest-income neighborhoods in San José.¹ They have suffered from years of disinvestment and neglect, leaving them with liquor stores, fast food chains, empty lots, and freeways rather than grocery stores or access to other healthy food resources.

¹ For example, the median household incomes of USD54,844 for the Alma neighborhood, USD52,877 for Gardner, and USD38,494 for Washington are quite a bit lower than the USD76,495 average for San José as a whole.

Focusing our programs in these neighborhoods made sense because of the less than optimal food environment, and also because of SCU's longstanding relationships in these communities. At SCU, the Ignatian Center's Arrupe Partnerships for Community-based Learning² has sent Santa Clara students into these neighborhoods since the 1980s. Arrupe's reputation with community partners allowed us to build upon already established trust relationships to get community buy-in to start BUG programs. Developing more place-based initiatives in these neighborhoods where SCU would have a more intentional relationship and a greater impact (both on the San José and SCU communities) has been a long-time goal of Arrupe Partnerships (L. Laird, director of Arrupe Partnerships for Community Based Learning, personal communication, Nov. 2011).

The BUG program started in 2009 at the same time SCU initiated a core requirement of experiential learning for social justice.³ This new requirement meant that *all* SCU students had to have a placement in a community where they would explore issues of social justice such as power, privilege, and oppression. The creation of this requirement clearly reflected the Jesuit mission of educating students in solidarity with the poor and oppressed. The timing of this was fortuitous for the BUG initiative. Various university entities, seeing that many more community placements were needed to enable students to fulfill this new core curriculum requirement, were willing to support BUG programming, particularly funding the salaries of our AmeriCorps volunteers who worked in both the Forge campus garden and the community. This influx of funding and interest around food issues energized many students to become more involved with both our campus garden and community outreach programs. As a result, BUG placements have become popular with students. In 2011, more than 100 students (out of a total of 1,200 at SCU) worked in BUG programs to meet

their experiential learning for social justice core requirements.

This essay will reflect on Santa Clara University's forays into experiential learning around food justice through the BUG program. We will first explore Jesuit education and experiential learning, particularly around issues of social justice. After describing the evolution of the BUG program, we focus on several observations, challenges, and questions emerging out of our experiences with BUG. Some of those observations involve the challenges of working with students and community partners to serve the interests of both groups. We also explore what food justice means to our undergraduate students and what it means when a program expands beyond the committed few to an entire student body. We find that community engagement around food justice is markedly different than the typical "food movement" experience that students working in an organic garden or farm on campus might have. Student farms around the United States tend to be more engaged with hand-on experiences of growing and marketing organic food (Sayre & Clark, 2011) rather than the lack of access to healthy food in low-income communities of color. One of the critiques of the food movement is that it has not engaged enough with communities of color, particularly around the intersection of food access, race, and inequality (Alkon & Agyeman, 2011). By going off campus, our students are getting to see some of the challenges that local low-income communities of color face around food system inequality and how these are linked to broader economic and social inequalities. Our students tend to be ethnically diverse⁴ but economically privileged. While they may feel cultural connections with the communities in which they serve, they are often coming to this experience from a position of relative privilege.

Social Justice and Experiential Learning

A phrase one often hears on a Jesuit campus is that students must let the "gritty reality" of the world into their lives in order to think critically about

² For more information about Arrupe Partnerships, see <http://www.scu.edu/ignatiancenter/students/arrupe/>

³ For more information about SCU's experiential learning for social justice core requirement, see <http://www.scu.edu/provost/ugst/core2009/elsj/>

⁴ Approximately 40 percent of the SCU student body are students of color. For student demographics, see <http://www.scu.edu/ugrad/apply/freshman/class-profile.cfm>

constructive engagement. In the words of Peter-Hans Kolvenbach (2000, p. 8), the former superior general of the Jesuit order, students should “learn to perceive, think, judge, choose, and act for the rights of others, especially the disadvantaged and the oppressed.” Jesuit education values experience, reflection, and action: experience to contextualize formal learning, reflection to understand experiences, and action that moves us beyond knowledge and understanding. SCU students have many ways of engaging with social justice activism, from student-run organizations to short- and long-term immersions, both domestically and internationally. This Jesuit value also mirrors some of the key thoughts presented by service-learning proponents John Dewey and Paulo Friere, both of whom emphasized sound integration of thought and action (Giles & Eyler, 1994). According to Freire, true “action-reflection” safeguards us against either extreme of empty words or thoughtless behavior and leads us on a path toward changing the socio-economic structures that engender oppression (Deans 1999).

The potential benefits of experiential learning in university settings are extensive. A 2008 report by the American Association of Colleges and Universities (AAC&U) pinpoints field-based experiential learning with community partners as one of 10 high-impact educational practices (Kuh, 2008). The benefits can be multifaceted. Students can apply classroom knowledge in real-world settings while working for positive change in the community, and then bring this knowledge back to the classroom to critically reflect on service experiences (Kuh). Experiential learning, particularly when guided by discussions with faculty, staff, and peers, can help students question “assumptions, analyses, conclusions and actions” (AAC&U, 2007, p. 47). Additionally, they may help to deepen the understanding of material covered in courses, increase critical thinking in complex and ambiguous situations, and show students how to engage in lifelong learning (Eyler, 2009). However, unless proper time and attention are given to integrating outside learning experiences with the goals and objectives outlined in course syllabi, students may not make appropriate connections (Qualters, 2010). Faculty must not only subscribe to the value

of experiential learning from a philosophical perspective, but also be willing to take practical steps to incorporate it into their pedagogy. When these two halves are brought together, experiential learning can bear fruit. Reflecting on her BUG placement at the Alma Community Center, one SCU student stated, “it provides real insight into issues concerning poverty and immigration. I am experiencing firsthand some of the issues that we discuss in class.”⁵

Part of the experiential learning for social justice process is putting students in situations with which they may not be comfortable. Speaking about the experience of overcoming her discomfort in her BUG placement, one SCU freshman shared, “I have never done this kind of service before. I was a little apprehensive about the people at first, especially when at orientation they told us we could not wear the colors blue or red because of the gang affiliations. But the kids were great, and they love interacting with us, the Santa Clara students.” She then added that her “placement pushes me into a culture that I wasn’t expecting. When I signed up I didn’t know what to assume about the different cultural setting. It’s helped remind me that what you see on the surface isn’t what is really there.” Helping students to recognize the social reality of injustices in contemporary societies, including a realization of their relative privilege and the marginalization of others, is an important part of the learning experience. There is also an expectation that students will gain perspective through interactions that are appropriate, sensitive, and self-critical. Through these experiences, students should also gain an appreciation of the formal and informal knowledge, wisdom, and skills of the population with which they are working. This sort of experiential learning falls into what Mitchell (2008) calls “critical” approaches to service-learning. These experiences differ from traditional service-learning in that they foster par-

⁵ Quotes from students are from evaluations conducted by the Arrupe Partnerships for Community-based Learning after their placements were finished. They are used by Arrupe staff to work with community partners to improve placements and to gauge the appropriateness of placements. Faculty also evaluate student experiences as part of the class evaluation experience.

icipating in social change orientations and help students to pay special attention to power, inequality, and privilege, developing authentic relationships between students and community members.

Service-learning programs are on the rise nationwide, but a flag of caution has been raised regarding placing too much emphasis on the benefits to students without ensuring that these do not come at the cost of the communities being “served” (Cone & Harris, 1996). True service-learning is effective only when it addresses the needs and acknowledges the worth of both students and the community. Embedded within the missions of both the experiential learning for social justice component of SCU’s core curriculum and the BUG program are commitments to serving the actual needs of our neighbors. The principal motivation behind this kind of programming is to engage students and community members in a mutually beneficial relationship.

How then might we ensure that the ideas and theoretical benefits of service-learning are translated into reality? Cone and Harris (1996) offer a service-learning model that attempts to take this tension into account. The model begins with highlighting the importance of adequately preparing each student for the service-learning experience and challenging him or her to learn from it. From the faculty perspective, this entails knowing the audience and adjusting the program accordingly. How faculty approach this often depends on the particular socioeconomic and ethnic milieu their students are working in. For example, like many schools in California, our student body is fairly ethnically diverse. Students may be used to ethnic diversity, but less comfortable with extreme poverty or the undocumented status of our program participants. For instance, if the majority of students in a given class share a privileged background, this can and should inform the way they are prepared for an inner-city experience. This often adds to a faculty member’s workload, and unless the faculty member is committed to the value of service-learning and well versed in its complexity, achieving successful facilitation can be difficult. A survey of faculty regarding their ability to integrate service-learning into the curriculum of their discipline showed that by and large, they were

not sure how to accomplish this task (Harkavy & Hartley, 2010). Asking students to go into communities and learn through experience can be counterproductive, as simply experiencing a different situation does not automatically lead to understanding and can even confirm previous world-views and stereotypes (Cone & Harris, 1996). Educators, therefore, should aid students in connecting their direct observations with abstract concepts covered in their courses through mediated and structured reflection and discussion. The instructor should facilitate learning, helping students to process what they see in communities. Success should be evaluated by the increased capacity of students to think critically and communicate articulately about their community experience (Cone & Harris).

The Program Model: BUG in the Field

The BUG program, founded in 2009, emerged out of our campus garden, the Forge. The Forge was founded in 2007 on a university-owned lot that had previously been a dumping ground for construction material. The Forge was initially envisioned as a campus education garden, where classes could hold labs and students could learn about urban agriculture. The mission of the garden changed when we became part of a south San Francisco Bay Area collaborative, the Health Corps, which is an AmeriCorps partnership dedicated to increasing access to fresh fruits, vegetables and garden-based education to low-income residents of Santa Clara County. Becoming part of the Health Corps meant that we needed to extend our programming to engage community members rather than just SCU students. BUG currently has two broad but inter-related goals. The first is to enhance ecological literacy and community health through garden-, food-, and nutrition-based education and training programs serving children, youth, teachers, families, and seniors in marginalized communities. The second is to provide community-based learning opportunities related to environmental and food justice for Santa Clara University students. To meet these goals, we initiated programming at the Forge and two community sites: (1) a school garden and corresponding education programs primarily at Gardner Elementary School and other schools in

the downtown area of San José, and (2) an after-school program at the Alma Community Center that offers a combination of garden-based learning, homework assistance and enrichment activities, and mentoring to students living in a marginalized community.

The Forge and BUG remain tightly linked. The Forge is our main garden and is used for garden-based education, training, and food production, while BUG does programming with our community partners at the Forge as well as in the community. The Forge has benefited significantly from our community engagement; our internal⁶ and external funding for BUG programs have helped to build out Forge garden infrastructure. Of our four full-time AmeriCorps volunteers, two are placed at the Forge and two at our community sites. However, they regularly have work exchanges at each of the sites and see each other as part of a larger team.

Students engage with the BUG program sites in many ways. Some of our students are part-time AmeriCorps volunteers; others engage with programs as interns. Most of our students, however, encounter BUG through the Arrupe Partnerships for Community-based Learning. Arrupe staff work with community partners to create placements for students. Figure 1 illustrates the Arrupe model of community-based learning that involves Arrupe staff, faculty, and community partners, all working together to engage our students in community service. Students generally participate in these experiences as part of a class requirement, although some do so independently. Arrupe placements are the most common way that SCU students meet their experiential learning for social justice core curriculum requirement. Professors wanting to incorporate this experience into a class must have their syllabi vetted and approved by a faculty committee that ensures that the class integrates the community experience through reflections and assignments. Professors then work with Arrupe Partnerships to choose appropriate placements for

their classes. Most of the available placements involve schools, daycare centers, homeless shelters, and various care facilities. There are placements at several food pantries, but BUG is the only placement that focuses on garden-based education.

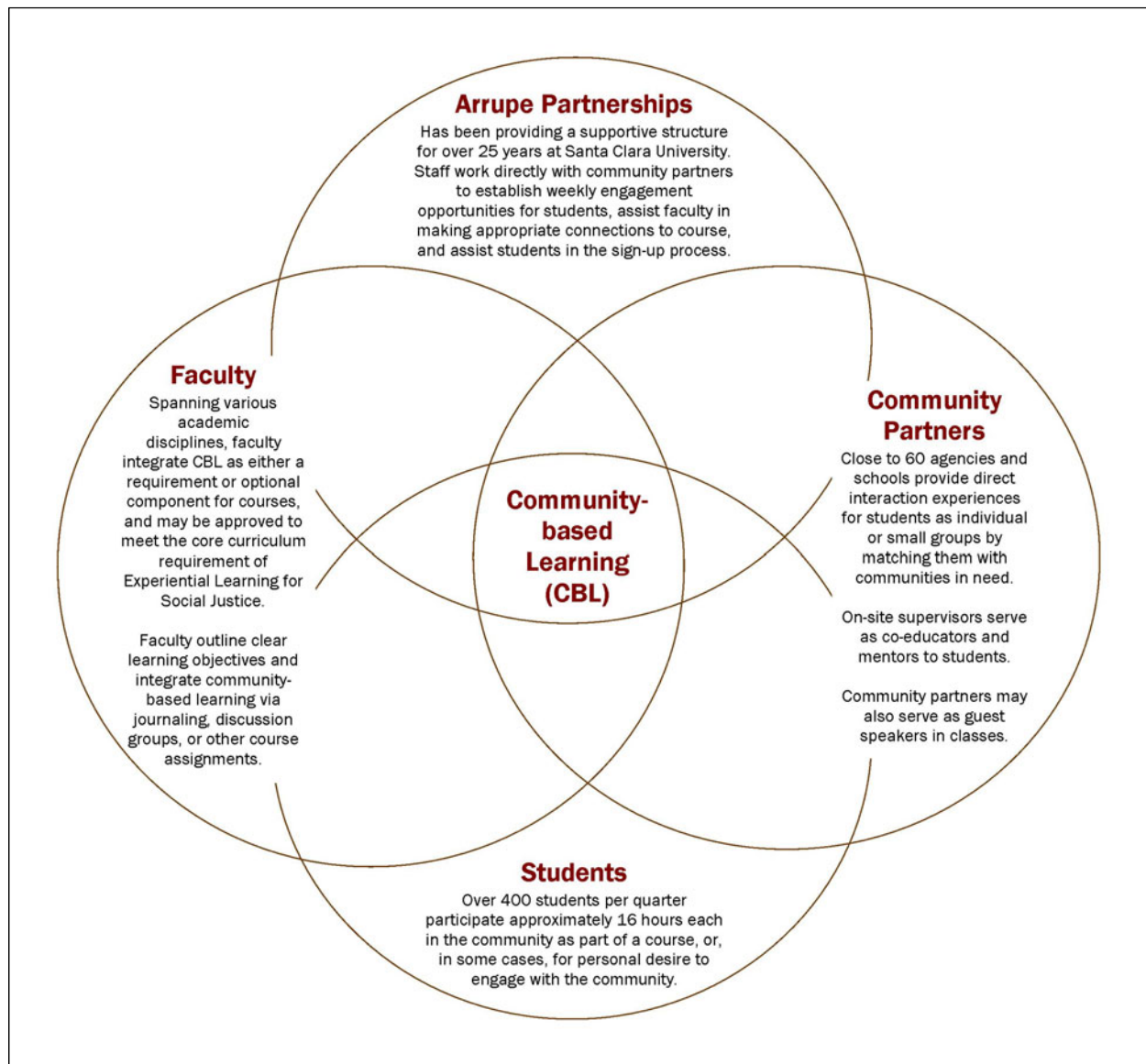
Students in classes are asked to complete 16 hours of service during the course of a quarter. After a short orientation, eight-week placements begin during the third week of the 10-week academic quarter. Students are evaluated by their attendance at their community placements and through reflective exercises and projects that incorporate their service experiences into their coursework. While some students choose a placement with our programs because they have heard of the BUG program and are interested in issues of food justice, others have little experience with gardening or food systems and choose a placement because it fits into their schedule.

Our largest BUG placement is at the Alma Verde after-school program, based at a community center in the Alma neighborhood in San José. The program has hosted students from classes ranging from Teaching the Performing Arts to Environmental and Food Justice to Developmental Psychology to Solidarity in the Community. The garden at Alma is an education garden, rather than a production garden. Our programs at Alma are much more geared toward developing and encouraging healthy eating and providing environmentally focused education. We serve healthy snacks to our program participants and during the 2010 school year held a weekly farm stand based out of the Alma Community Center. Over the 2011–12 school year we have been developing relationships with local grocers to deliver foods to supplement our snack supplies. Our other sites are more garden-oriented. Volunteers at our Gardner site have built a garden and teach science-based curriculum out of the garden. We are currently developing an elementary school field-trip program out of the Forge campus garden.

Professors and staff are co-educators for our university students both in the community and the classroom. SCU students engage with children, their families, and other community members in their placements and then relate their experiences back to their classes through reflection papers,

⁶ Our programs are currently funded by three on-campus entities: the dean's office of the College of Arts and Sciences, the Ignatian Center for Jesuit Education, and the Food and Agribusiness Institute.

Figure 1. Community-based Learning: The Partnerships



Sources: Arrupe Partnerships for Community-based Learning; Ignatian Center for Jesuit Education, Santa Clara University (2012)

journaling, and presentations. Some professors require students to implement a project, such as teaching a lesson. We find that exposure to food and agriculture is very humbling and can be transformative for college students. As one SCU student recognized of her BUG placement, “I get to interact with a community much different than what I am used to here at Santa Clara.” Another student placed with BUG explained that, “it exposed a culture that I have previously not

experienced.” SCU students at Alma Verde often approach BUG staff to discuss how shocked they are upon learning about the kind of food program participants eat at home and to share ideas they have for bringing about change. An SCU student placed with BUG noted, “I’m in a food justice class. By working at Alma Verde, I learn how food insecurity affects the children in that area in terms of what kinds of food they’re eating.” Realizing that these neighborhoods have few grocery stores

or that families do not have the financial resources to purchase healthy food comes as a surprise. Students often want to jump in and try to solve perceived problems with little understanding of the social and political constraints and root causes of inequality facing community members. Students frequently champion the idea of growing food locally, but their relative power positions are turned upside down when they realize they cannot solve community problems. Our goal is for students to realize that their experience is characterized by mutual exchange. Instead of viewing their placement as a one-way flow of service in the form of volunteering, students do often recognize that they are receiving just as much or more from the community through increased self-awareness, cultural education, and language skills. A junior placed at Gardner Elementary School explained she felt she learned more than the students she was teaching: "I chose this placement to work in a garden outside while simultaneously teaching kids all about the garden and its causes! I get sunlight, dirt under my nails, I get to have fun with a group of awesome kids, practice my Spanish, and learn probably more than the rest of the kids!"

Serving Both Community and Campus Needs: Lessons Learned

Opening up our outreach programs to serve both campus and community needs has both benefits and challenges. One of the benefits has been access to large amounts of student assistance for our program staff. This has been invaluable, particularly at Alma Verde, where SCU students work one-on-one with children, helping with homework and other enrichment activities. Our program staff are always cognizant that they are serving multiple partners and stakeholders, including local nonprofit organizations, AmeriCorps, Santa Clara University, and families. Our AmeriCorps staff positions are funded through AmeriCorps, local nonprofit The Health Trust, and Santa Clara University. Our staff have to report to both AmeriCorps and SCU and are accountable to our community partners. This requires striking a delicate balance between needs and goals of our funders, partners, and community members. This often adds a layer of complexity in terms of program management. For example, the

goal of the Silicon Valley Health Corps is to increase the consumption of healthy fruits and vegetables among children and youth in Santa Clara County. Santa Clara University's goal is to cultivate the understanding of social justice among its student body. While these goals by no means stand in opposition to one another, they do represent different areas of emphasis and demand a creative approach to program implementation. These differences are also illustrated by how we measure success. AmeriCorps defines success in terms of pounds of produce grown, the number of gardens created, the number of children and adults served, and the number of classes and leadership programs conducted by our programs. The university, while aligned with the food-justice outreach mission, sees the primary metrics of success in terms of numbers of SCU students serving in the community through community-based learning opportunities, and the quality of experiences of students at their placements. Students evaluate both the quality of their placements through Arrupe and their professors in the courses they are taking for the Arrupe placement.

Besides university-community partner relationships, we must also consider the needs and wishes of the parents and students participating in BUG programs. At our Alma Community Center site, the BUG commitment to provide garden-based education often pushes up against the needs of participating families. Most of the children enrolled in Alma Verde come from Spanish-speaking families. Because many program parents do not speak English, if children do not complete their homework at the community center, they may not be able to receive help at home to finish it. Furthermore, many children at Alma Verde are several grade levels behind in math and literacy, so it takes additional time for them to complete their homework. For these reasons, parents repeatedly ask that their children's homework be completed by the time they go home. This often means that there is little time to lead a lesson in the garden. As one of our SCU student AmeriCorps volunteers noted: "It is hard when you have a group of diverse ages and abilities, like our one-room schoolhouse that makes it difficult to figure out what to teach and how to teach it. And with so

many groups with a vested interest in our program and our programming, it's hard to please everybody." Garden education often receives short shrift in this rush to meet the needs of students.

In addition to this, we have experienced challenges with our community partners as well. Our staff has spent many hours working with community members to gain their trust and participation. Nonetheless, negotiating the fine line between responsibilities has led to misunderstandings. At Alma, for example, our partners have sometimes had different expectations about what the garden should look like. Frustration caused by misunderstandings and miscommunications has even led to the dismantling and removal of garden projects, such as square-foot gardens, tomato cages, and vegetation and produce. We learned from this experience that including the community in a participatory design process is essential to avoiding miscommunications regarding differing expectations. At our Gardner Elementary School site, the community was brought in early in the design and development process, and these sorts of problems were avoided. Despite these misunderstandings, low-income communities have generally been pleased that local university students and AmeriCorps volunteers stepped in to provide much needed services to their underserved communities.

How does this experiment in experiential learning for food justice work out for SCU students? Sending undergraduates out into the community is not the same thing as making sure they are having meaningful experiences. This is particularly true as our programs have moved beyond the committed few to encompass the whole student body. One challenge is with students who view their placement as a mandatory requirement. A few students have been vocal in their disinterest, but the majority attest to experiencing the transformative effects that the programs are intended to have. While our students do not always look different than the people in the communities they are serving, their position of privilege and power as students at an elite private school puts them in a different place, irrespective of their background. An important part of a meaningful experience relies on the coupling of the community

engagement with reflection. Community engagement in a "critical" experiential learning placement around food justice navigates race, class, self-realization, and reflection. Much of this happens formally in a classroom setting, where faculty and staff guide students through journaling, reflection, discussion, and discernment of their "positionality"

Reflection on Alma Community Center

Michelle Tang, SCU Junior and AmeriCorps Member

My connection to Alma has always felt special, I think, because I am from San José and I can bike to the center from my house in about 15 minutes! Alma Community Center is across the street from the Department of Motor Vehicles, where I got my driver's license when I was 16 years old. As a Vietnamese-American woman, I may not relate instantly to the children, who are primarily Latino, but I can usually find ways around this. Being so close to the Santa Clara campus, I think it surprises our volunteers to learn about the reality of lives in the Alma neighborhood, just fifteen minutes away from our pristine campus. But after spending eight weeks at Alma Verde, I think many of them have enjoyed learning and laughing with the kids and have added Alma Verde to their mental map. They might even find that the two hour-a-week community-based learning placement, instead of being a chore, is a chance to connect themselves and what they have been discussing in their classrooms to the lives of local kids.

Serving at Alma during my time in college has definitely been a great influence on my life. I've learned so much about gardening, about food, about nutrition, and having the opportunity to apply this in the urban setting of San José, my hometown, has been both challenging and enriching. I think I never noticed how difficult it really is to have access to healthy food growing up, although I do notice the lack of healthy food resources within walking distance. This problem is exacerbated for many of our families in the program who live in apartments, and have little to no access to a small plot of land to grow their own food. I didn't learn about "food justice" until I was in college, and spending so much time at Alma, healthy food is really hard to come by sometimes when you are looking for food here. It's a serious issue, and I think our program is only one avenue by which we can serve the local community by engaging children about nutrition, which starts at our program and can continue into their homes.

regarding their engagements with community members. (See sidebar.) It also happens informally, as AmeriCorps staff and student interns interact with SCU volunteers. These interactions, both within and outside of a class setting, help students to process their complex feelings and experiences.

What has been an experiment in experiential learning for food justice has provided many learning moments for our faculty and staff. We have found that this endeavor of engaging local communities around food justice while using experiential learning placements to educate our own students about food justice issues has required a complex set of resources, time, and patience. We are always conscious of the delicate balance of community versus university needs, recognizing how tempting it can be to tilt in the favor of the university. All of us agree that community needs must come first; our primary program mandate is to provide garden-based education to underserved communities. In general, we have found that engaging with issues of food justice at the community level and receiving hands-on learning about sustainable agriculture has been incredibly powerful for all of our stakeholders. University students often come back transformed about their place in a very complex food system. Communities have benefited as well. One concrete benefit is that BUG has helped keep programs at the Alma Community Center afloat while the city of San José has struggled to find funds to keep it open. Furthermore, through the creation of a garden at Alma and at local elementary schools, BUG has increased awareness of and access to healthy food in one of the most impoverished areas of San José. As one parent noted one afternoon at Alma, “I think it’s really great what you all do with the kids, giving them fruits and vegetables and teaching them about being healthy.”

Final Thoughts on Experiential Learning for Food Justice

In this essay, we explore our attempt at using our university garden as a launching pad for an experiential learning for food justice program. We see that experiential learning in the context of food justice and garden education can successfully provide opportunities for undergraduate students

to engage with marginalized communities and explore issues of social justice, while also providing a space to learn how to grow food sustainably with community members. We also believe that university garden programs can both promote community-based learning initiatives and provide low-income communities with education and services around nutrition and sustainable agriculture techniques. However, few documented programs serve as a model for a food systems approach to this type of university-community collaboration.

We come out of our recent experiences with several programmatic thoughts. Students’ experiences of food systems are often very different off-campus than on-campus, particularly if they are engaging with low-income communities of color. For example, many universities have students farms that provide educational training in organic and sustainable agriculture techniques, marketing, and management (Parr & Van Horn, n.d.). Issues such as food access and inequitable distribution of resources are not issues at the forefront of most university gardens and farms. These types of “critical” experiential learning placements expose students to a different kind of food movement that goes beyond the promotion of sustainable agriculture and organic food to issues of racial, environmental, and economic justice (Alkon & Agyeman, 2011). However, to ensure that students engage with the community in a deep and thoughtful manner, we concur with the dominant literature emphasizing that bringing back community experiences into class settings is extremely important for learners to critically reflect and process their experience (Cone & Harris, 1996). We have also seen that university students engaging in garden- and food-based experiential learning for the first time need to be provided with orientations to sensitize them to the issues of power, privilege, and respectful engagement before they enter into community settings.

Our engagement with experiential learning for food justice has helped us reflect on the nature of university-community partnerships. Mitchell (2008) argues that the difference between traditional and critical experiential learning is that traditional experiential learning has tended to privilege the

needs of students over community members, whereas critical experiential learning seeks to benefit all parties. Our experiences have shown us that to benefit and support the students and communities we serve, careful coordination with communities members is a crucial step in engaging communities in meaningful ways. By doing the community-building groundwork, we have been able to develop and coordinate appropriate and effective activities, classes, and learning experiences for the community and our students. This has been an extremely time-consuming but ultimately necessary endeavor. Program faculty and staff have attended neighborhood association meetings, city council meetings, and community events, working with community members to engage in participatory design of our gardens and garden programs. We have learned the hard way that without community support and engagement, many garden programs struggle to expand or fail. When a community supports programming, garden programs can be run effectively and smoothly, benefiting not only our students but also the communities where we work.

Acknowledgements

We would like to thank Laurie Laird, Andrea Brewster, and Phyllis Brown for their helpful suggestions.

References

- Alkon, A. H., & Agyeman, J. (2011). *Cultivating food justice: Race, class and sustainability*. Cambridge, Massachusetts: The MIT Press.
- Association of American Colleges and Universities [AAC&U]. (2007). *College learning for the new global century: A report from the National Leadership Council for Liberal Education and America's Promise*. Washington, D.C.: Author.
- California Food Policy Advocates. (2012). *2010 Santa Clara County Nutrition and Food Insecurity Profile*. Retrieved from <http://cfpa.net/GeneralNutrition/CFPAPublications/CountyProfiles/2010/CountyProfile-SantaClara-2010.pdf>
- Cone, D., & Harris, S. (1996). Service-learning practice: A theoretical framework. *Michigan Journal of Community Service Learning*, 3(1), 31-43. <http://hdl.handle.net/2027/spo.3239521.0003.104>
- Deans, T. (1999). Service-learning in two keys: Paulo Freire's critical pedagogy in relation to John Dewey's pragmatism. *Michigan Journal of Community Service Learning*, 6(1), 15-29. <http://hdl.handle.net/2027/spo.3239521.0006.102>
- Eyler, J. (2009, Fall). The power of experiential education. *Liberal Education*, 95(4), 24-30.
- Giles, D., & Eyler, J. (1994). The theoretical roots of service-learning in John Dewey: Toward a theory of service learning. *Michigan Journal of Community Service Learning*, 1(1), 77-85. <http://hdl.handle.net/2027/spo.3239521.0001.109>
- Gottlieb, R., & Joshi, A. (2010). *Food Justice*. Cambridge, Massachusetts: The MIT Press.
- Harkavy, I., & Hartley, M. (2010). Pursuing Franklin's dream: Philosophical and historical roots of service-learning. *American Journal of Community Psychology*, 46(3-4), 418-427. <http://dx.doi.org/10.1007/s10464-010-9341-x>
- Kolvenbach, P.-H. (2000, October). *The service of faith and the promotion of justice in American, Jesuit higher education* [address at Santa Clara University], Santa Clara, California. Retrieved from http://www.scu.edu/ignatiancenter/events/conferences/archives/justice/upload/f07_kolvenbach_keynote.pdf
- Kuh, G. (2008). *High-impact educational practices: What they are, who has access to them, and why they matter*. Washington, D.C.: American Association of Colleges and Universities.
- Mitchell, T. D. (2008). Traditional vs. critical service-learning: engaging the literature to differentiate two models. *Michigan Journal of Community Service Learning*, 14(2), 50-65. <http://hdl.handle.net/2027/spo.3239521.0014.205>
- Parr, D., & Van Horn, M. (n.d.). *Sustainable Agriculture Education Association: Student farms* Retrieved February 7, 2012, from <http://sustainableaged.org/Topics/StudentFarms/tabid/84/Default.aspx>
- Public Health Law & Policy [PHLP]. (2010). *Healthy Food Resource Assessment: Santa Clara County*. Oakland, California: ChangeLab Solutions (formerly Public Health Law & Policy). Retrieved from <http://www.healthtrust.org/foodaccess/>
- Qualters, D. M. (2010). Making the most of learning outside the classroom. *New Directions for Teaching and Learning*, 2010(124), 95-99. <http://dx.doi.org/10.1002/tl.427>
- Sayre, L., & Clark, S. (Eds.). (2011). *Fields of learning: The student farm movement in North America*. Lexington, Kentucky: The University Press of Kentucky.

Walking the talk of food systems at a small land-grant university: Overcoming process barriers to a transdisciplinary approach

Jane Kolodinsky,^{a,*} Naomi K. Fukagawa,^b Erin Roche,^c Cynthia Belliveau,^d and Hayley Johnson^e

University of Vermont

Submitted 1 December 2011 / Revised 27 April and 1 June 2012 / Accepted 7 June 2012 / Published online 20 June 2012

Citation: Kolodinsky, J., Fukagawa, N. K., Roche, E., Belliveau, C., & Johnson, H. (2012). Walking the talk of food systems at a small land-grant university: Overcoming process barriers to a transdisciplinary approach. *Journal of Agriculture, Food Systems, and Community Development*, 2(3), 149–159.
<http://dx.doi.org/10.5304/jafscd.2012.023.015>

Copyright © 2012 by New Leaf Associates, Inc.

Abstract

In this paper we present the evolution of a transdisciplinary food systems (FS) initiative at a small land-grant university. The first indication of the relevance of food systems study at this university came from faculty and students, which

then progressed to the establishment of structural changes and financial support by the administration. This commentary demonstrates that successfully incorporating transdisciplinary academic support, research, and educational programs is not an easy endeavor and requires multilevel buy-in from all strata within the organization. This approach also takes substantial time and resource commitment from faculty, staff, students, administration, and the community. If approached in a holistic, transdisciplinary manner, FS initiatives will link what universities do best with improvement in the FS continuum from food production to public health. As with most new initiatives, there are both barriers and triggers to success, and work is ongoing. Using the lens of the University of Vermont (UVM), this paper poses questions and provides best practice advice to others who seek collaboration across disciplines that goes beyond inter- or multidisciplinary collaboration.

All authors are associated with the University of Vermont Food Systems Transdisciplinary Initiative.

^{a,*} *Corresponding author:* Jane Kolodinsky, Community Development and Applied Economics, University of Vermont, Central Campus, Burlington, VT 05405 USA; Jane.Kolodinsky@uvm.edu

^b Naomi K Fukagawa, College of Medicine, University of Vermont

^c Erin Roche, Center for Rural Studies, University of Vermont

^d Cynthia Belliveau, Continuing Education, University of Vermont

^e Hayley Johnson, Food Systems Spire, University of Vermont

Keywords

community partners, food systems, higher education, Higher Education Challenge Grant, organizational development, transdisciplinary, Vermont

Introduction

Universities across the country are embracing the concept of food systems. With its historic niche in smaller-scale approaches, a small land base, varied topography, harsh climate, and limited infrastructure, Vermont and the University of Vermont (UVM) should be well positioned to successfully contribute to instruction, research, and outreach in the area of *smaller, regionally based* food systems. Vermont residents and visitors value food and farming, resulting in the highest per capita direct-market sales in the nation (Strolling of the Heifers, 2012). Interest in a regional approach is growing nationally with growth in local, sustainable food production, a growing number of farmers' markets (U.S. Department of Agriculture [USDA] Agricultural Marketing Service, 2011) and an increasing demand for organic foods (USDA Economic Research Service, 2009).

Incorporating food systems into curriculum, research, and outreach is a challenge for any university that sees FS as a meaningful way to maintain relevance in today's world. Decisions need to be made about whether to repackage existing programs with a new name that includes "food systems" or to build new programs from the bottom up and rename them later. UVM chose the latter, using a staged planning approach that was facilitated by a U.S. Department of Agriculture (USDA) Higher Education Challenge Grant to develop a Food Systems Masters Program. At that time (2009), fewer than five universities had programming specifically named food systems. By 2012, most of the land-grants and many other universities listed food systems programming on their websites. At UVM, it took three years for final approval of a Food Systems Master of Science degree, which occurred in February 2012. However, UVM has yet to offer an undergraduate major with the specific designation of food systems. Challenging factors such as faculty governance over the curriculum and the multiple

disciplines involved in FS courses contributed to a process that raised questions for which many universities trying to "walk the talk" of food systems may not have immediate or complete answers.

Background: Transdisciplinarity vs. Multidisciplinarity vs. Interdisciplinarity

Universities are typically designed around "disciplinary silos," where each department has its focus of expertise, each faculty member has his or her own research program, and each discipline has its own journal. However, a transdisciplinary approach is called for when knowledge about a societally relevant problem field is uncertain, when the concrete nature of problems is disputed, and when there is a great deal at stake for those concerned by problems and involved in dealing with them (Pohl, von Kerkhoff, Hirsch Hadorn, & Bammer, 2008). Few would argue that the planet's food system is not at a critical juncture. Food systems solutions to negative impacts of climate change, growing populations, and obesity, superimposed with food insecurity, require transdisciplinary solutions. Therefore, as universities formulate structures for food systems offerings, they must think about how transdisciplinarity differs from multidisciplinarity and interdisciplinarity and how or whether higher education can adapt to the changes required by this evolving paradigm.

The descriptor transdisciplinary differs from multidisciplinarity and interdisciplinarity. Multidisciplinarity refers to faculty from different disciplines addressing a particular problem independently and staying within their specific disciplinary framework (Wickson, Carew, & Russell, 2006). Interdisciplinarity refers to "a mode of inquiry by teams of individuals that integrate information, data, techniques, tools, perspectives, concepts, and/or theories from two or more disciplines or bodies of specialized knowledge to advance fundamental understanding or to solve problems whose solutions are beyond the scope of a single discipline" (National Research Council of the National Academies [NRC], 2004, p. 39). Transdisciplinarity extends beyond a "linear application of a static methodology and aims for an evolving, dynamic or

responsive methodology that is iterative and an ongoing part of the research process” (Wickson, et al., 2006, p. 1051). Faculty from different disciplines use a shared conceptual framework to develop the project by defining the approaches, which are more fluid. The fundamental requirement is that scholars from the different disciplines respect and try to understand the approaches, methods, and theories of others, with the goal of integration rather than parallel function. Baker, Koliba, Kolodinsky, Liang, McMahon, Patterson, and Wang (2009) discuss the movement toward transdisciplinarity of a single *department* at a land-grant university, but there is a dearth of referred publications devoted to transdisciplinary *food systems* education, research, and outreach.

In the early 2000s, several publications discussed the move toward inclusion of sustainable or ecological agriculture in higher education (e.g., Parr, Trexler, Khanna, & Battisti, 2007) and “the complex character of agriculture” (Fields, Hoiberg, & Othman, 2003). Only one paper by authors outside the U.S. addressed food *systems* education, described as “ecological agriculture” (Lieblein et al., 2000). These early approaches planted the seed for food systems as a distinct area of study, but one that included multiple disciplinary approaches with the goal of an integrated effort. Only the *Journal of Agriculture, Food Systems, and Community Development* has published contemporary papers on food systems education. These have either a disciplinary focus (planning) (Mendes & Nasr, 2011), speak of interdisciplinarity instead of systemwide approaches to sustainable agriculture programs (Jacobsen, et al., 2012), or use a values based approach as a coordinating umbrella for existing sustainable agriculture programs (Galt, Clark, & Parr, 2012). A lack of literature on transdisciplinary food systems approaches could be attributable to unintended barriers to these approaches inherent in the structure of our land-grant universities.

There has been growing support for transdisciplinary approaches from the funding agencies on which food system academics often rely. In 2001, the National Research Initiative (NRI) of USDA “encouraged multi-disciplinary research, which is needed to solve complex problems, and seeks to initiate research in new

areas of science and engineering that are relevant to agriculture, food, forestry, and the environment” (USDA National Institute of Food and Agriculture, 2001, p. 1), with “integrated” projects added to the 2004 research agenda of the USDA (USDA, 2004, p. 2). Integration as a focus has continued with the Agriculture and Food Research Initiative (AFRI) program, as well as with the National Institutes of Health (NIH) and National Science Foundation (NSF) initiatives. Nevertheless, the challenge of achieving consensus about the value of transdisciplinary approaches (vs. multi- or interdisciplinary) remains.

UVM chose to embrace the transdisciplinary approach. Food systems go beyond sustainable agriculture and can include almost every discipline, from cultural aspects of food studied by anthropologists and the environmental effects of production and consumption studied by environmental scientists, to the political economy and historical relevance of the Columbian exchange on our current food system. Taking a “choose several” (courses) approach to food systems education and research that requires the student or faculty member to “connect the dots” may not lead to student understanding of the complex solutions necessary to solve complex problems, nor researchers’ ability to find innovative ways to research complex problems. Movement toward the transdisciplinary is one approach that may.

Table 1 (next page) outlines these questions and some approaches that may alleviate barriers in the process of moving toward a transdisciplinary food systems approach in higher education.

One University’s Approach

Using table 1 as a guide, the following outlines the approach taken at UVM to move toward transdisciplinarity in food systems education, research, and outreach.

Grassroots Faculty Efforts

The first of two USDA Higher Education Challenge Grants pave the way

In 2003, the College of Agriculture and Life Sciences’ (CALS) Department of Community Development and Applied Economics (CDAE)

Table 1. Questions and Possible Approaches to Moving Toward a Food Systems Approach in Higher Education

Questions	Spectrum of Possible Approaches	
What is the best way to help faculty have a conversation about transdisciplinary approaches to education, research, and outreach?	Allow conversations to develop informally and through grassroots efforts.	Provide formal opportunities to engage in and facilitate conversations.
Should the process be piecemeal, introduced in a series of uncoordinated steps, or a coordinated effort?	Individual faculty, student, and organizational unit events are unconnected and not coordinated.	Provide a central hub for coordinating events across campus.
How does an institution incentivize a food systems approach?	Individual faculty volunteer time and organizational units provide resources.	Formal, centralized incentive packages are offered.
Should there be a coordinator across campus?	No coordinator; faculty initiatives grow from the bottom up.	A coordinator is appointed to insure initiatives are woven into a fabric of food systems activities.
Should university resources be allocated initially or should resource allocations wait until food systems initiatives are successful?	Resources are allocated on a case-by-case basis, provided by individual units.	The initiative is provided up-front funding through reallocated or new resources.
Can existing coursework be repackaged into a food systems curriculum?	Current courses are rearranged into a "new" curriculum.	New courses are developed that specifically address differences in a transdisciplinary approach.
Should new organizational structures be developed to encourage transdisciplinary work?	Current department and college structures remain; faculty reach out beyond their own organizational homes.	New structures are added (e.g., Centers) or new organizational lines are drawn that facilitate transdisciplinary work.
Should teaching, research, and outreach components be treated as separate entities?	The three hallmarks of the land-grant mission remain separate; transdisciplinarity is encouraged within each.	Food systems is recognized as cutting across the larger mission and is coordinated in its approach.
Are current university governance systems adequate for transdisciplinary approaches?	Current systems are used, resulting in a longer process of implementing a food systems approach.	Streamlined governance systems are developed that recognize complexities of working across units.
How involved should the community be in food systems initiatives?	Utilize the current structure in which outreach is the realm of Extension and Continuing Education.	Incorporate the community into teaching, research, and outreach.

was awarded a USDA Challenge Grant to develop an undergraduate, *multidisciplinary* curriculum for science, economics, and policy in agriculture. Designed to prepare undergraduate students for employment in the food and agricultural sectors into the twenty-first century, the culminating course engaged 300 students in a cross-disciplinary, project-based experience. While many disciplines related to food systems were represented, the effort was hardly transdisciplinary. Faculty across disciplines participated on a voluntary basis, but

each spoke a different research language and used different teaching pedagogies, resulting in tension between natural and social scientists. While faculty members did engage, the project-based experience was seen as an add-on for them and an unrestricted elective for students. No incentives were available. Faculty were not rewarded, students were not required to participate, and no formalized undergraduate curriculum was developed. Despite this, the faculty and students began conversations that helped to build momentum as more food

systems initiatives evolved, building a base for food systems. The lesson learned: A transdisciplinary approach was “easier said than done.”

A food systems minor

In 2003, several department chairs engaged in discussion about creating an undergraduate food systems minor that would be *integrated* across departments and not just piece together existing curriculum. Mutual agreement that at least one new course that encompassed the “food system as a system” was needed (e.g., Parr et al., 2007), led to “Farm to Table: Our Contemporary Food System,” cross-listed in many departments throughout the university. Within the minor, students choose from courses such that they have an understanding of both the natural and social science aspects of food systems (UVM CALS, 2011).

Unlike the typical one-year approval process for a minor, this initiative took more than three years to move through the governance system because the inclusion of several departments required discussion, revision, and voting at the departmental level before it moved to the college and university level. University governance proved to be cumbersome, but success meant that food systems was officially part of the catalogue. As faculty became interested in cross-unit food systems work, and despite the lack of new resources and coordinated leadership, workloads were juggled and, more importantly, food systems curriculum became available to students university wide.

Since then, food systems has been “seeded” into a variety of coursework. By 2011, 23 new courses with food systems themes built from the bottom up were offered at UVM. Faculty believed that these were strategic and necessary moves toward a transdisciplinary approach and negotiated with chairs so they could deliver these courses while meeting demands of their other workloads. Other student and faculty initiatives were subsequently spawned, but challenges remained.

i. The Honors College picks food systems.

Concurrently with the above initiative, the UVM Honors College hosted a faculty conference with a food systems theme, engaging about 50 faculty from across the university to learn about and

discuss food systems. However, without resources, the faculty connections remained informal and fragile. This event might have been more impactful if it had been part of a larger, coordinated effort.

ii. A faculty-led, student-run seminar expands food systems thinking and activities. In 2010, four faculty members offered a seminar designed to challenge undergraduate and graduate students to assist university faculty and administrators in developing food systems programming. Experts from across the country were brought together to share their food systems experiences, research, and initiatives. Participating students and faculty mobilized to improve sustainability of food service and beverages on campus, and a weeklong summer intensive food systems course was developed. Several students have continued to mobilize UVM student services toward embracing regional food systems when evaluating choices of contracts. The tenacity and passion of these students and faculty resulted in UVM not renewing its exclusive beverage contract in order allow more options for sourcing locally. The seminar, however, could be characterized in the same way many other initiatives were: one-time events, supported by a single entity (in this case a dean), with no formal linkages to other food systems initiatives. Just as faculty were growing educational opportunities in food systems, students became more educated about food systems issues and felt empowered to use their voices for change.

iii. Student initiatives parallel faculty action: Student voices. Students have been instrumental in the progression of food systems at UVM, demanding real change in the campus wide food system. In 2006, students demanded more local food on campus and organized a “meet and greet” event for local producers and dining services, which brought local vendors and UVM dining services together to discuss, taste, and debate the triggers and barriers to bringing more local food to our campus. The efforts spawned a master’s thesis (Jordan, 2006) and more open communication between vendors and campus buyers. The improved communication, along with student demand, spurred an increase in local purchasing. University Dining Services created a student internship to catalogue local purchases. While these efforts were not yet

coordinated in any larger university wide effort, the internship continues in its sixth year. The tenacity of students engaged in these grassroots efforts continues to create change in the UVM food system.

iv. The Real Food Challenge opportunity. During the 2010 seminar course, undergraduates were introduced to the Real Food Challenge and subsequently worked to persuade the administration to sign the pledge to increase the university's use of local, community-based, fair, ecologically sound, and humane food in campus dining facilities to 20 percent by 2020 (Real Food Challenge, 2011). Providing data and a challenge to the university, the students demonstrated how easily UVM could achieve this goal with UVM's purchase of Real Food, growing from 10 to 12 percent in the last two years (Real Food Challenge, n.d.; Nord, 2011). The Real Food Challenge epitomizes the opportunity to "walk the talk" at a systems level and was signed in March 2012. Faculty helped the students navigate the university landscape, facilitating contact with appropriate administrators. Oversight of the effort was made the responsibility of the university chief of staff, who is charged with moving the initiative forward.

v. Other initiatives provide an opportunity to engage more students. The first national Food Day, held on October 24, 2011 (Food Day, 2011), presented an opportunity for students to become more involved in food systems-related activities. Over 200 students attended two panel discussions and a seminar. However, as with the Honors faculty conference, this was a one-time event accomplished by volunteers with no formal follow-up. Other ongoing events helpful in engaging students include an on-campus farmer's market, a student-run community supported agriculture operation (CSA), and campus drives to encourage the composting of food waste on campus.

Faculty participate in a national initiative

Concurrently with developing the food systems minor, UVM cooperatively hosted the Food Systems Leadership Institute (FSLI) with two other universities. It was cosponsored by the W. K. Kellogg Foundation and National Association of State Universities and Land-Grant Colleges

(NASULGC). The FSLI provided "a program dedicated to advancing and strengthening the food system by developing strong and effective leaders prepared to bring cultural change to food system organizations, with a special focus on our nation's land-grant universities" (Food Systems Leadership Institute, n.d., para. 1). Several UVM faculty members were on the planning committee, and others completed the program. While this was an opportunity to network and gain administrative skills, UVM participants felt that UVM was seen as the "rogue" land-grant institution focused more on small to medium-sized diverse and regional food systems. Despite not "finding a place at the table" among the larger universities with a focus on larger monocultural food systems in conventional agricultural models, UVM faculty members were energized and optimistic that there was room "in the market" for the approach UVM planned to take.

Master's level education

Faculty members saw a need for graduate-level education, not only to train future scientists but also to create a more knowledgeable, systems-thinking workforce that could find employment in the private, not-for-profit, or public sectors. This led to the development of an integrated approach to graduate education in food systems. In 2009, UVM was awarded a second USDA Higher Education Challenge Grant to develop such a graduate program. A broad-based, but voluntary, effort ensued, using direct dollars from the grant to pay for activities aimed at mobilizing and creating synergy among faculty. Faculty participated in informal discussions, and food systems leaders from other universities were invited to visit and share their experiences to strengthen the proposal. While graduate programs at UVM are all housed in the Graduate College, individual departments administer the programs and accept students. The new graduate program will be a test of a "cross-university committee approach" to evaluating applicants and determining who will be accepted; it is a major step toward a transdisciplinary effort in food systems.

As with the undergraduate minor, the typically slow university process was challenged by the

graduate proposal. As it was disseminated across campus, disciplinary silos emerged even though most faculty and administrators were favorably inclined toward the program. Rigor, depth, and breadth were debated. After months of deliberation, discussion, and compromise, the faculty signed on, but questions about resources remain unanswered. The faculty members responsible for shepherding the program through the process volunteered their time, departments put resources on the table in order to gain two graduate assistantships from the administration, and the first year of the program will be funded by the USDA grant.

The Administration Weighs in on Scholarship

UVM's transdisciplinary research initiative

In 2009, UVM embarked upon an unprecedented university wide conversation: the Transdisciplinary Research Initiative (TRI). Led by UVM administration, the Faculty Senate, and faculty experts from across campus, the TRI helped map UVM's existing and emerging transdisciplinary strengths in order to further develop areas that can achieve distinctive national and international reputation for research and scholarship. UVM will strategically invest resources to create new knowledge, advance economic development, and engage our communities. The TRI aimed to create foci, or "Spires of Excellence." A proposal to establish a Food Systems Spire of Excellence was competitively reviewed and selected to be one of three Spires of Excellence in 2010, although the idea of food systems being a university wide focus was not readily embraced. The transdisciplinary spire concept had the potential to weave together food systems initiatives that exist across campus.

A committee "steers" the initiative

In Fall 2010 the provost appointed a steering committee consisting of faculty from across the university to develop metrics and move the Food Systems Spire forward. The committee agreed on a mission statement:

A community of scholars, practitioners, educators, students, and civic partners who actively engage in generating, communicating and applying new knowledge that ensures the present and future

viability of smaller-scale food systems, with implications from the local to the global.

The steering committee and UVM community strategically allocated resources from a variety of sources toward promoting collaborations in food systems. Examples of these are shown in table 2.

Table 2. Collaborations Resulting from Strategic Investment of Limited Resources

Food Day Program	See Food Day, 2011.
Food Systems Symposia	An annual event that both brought faculty together to introduce FS at UVM (Year 1) and to begin collaborative work on writing proposals for external funding and engaged the governing bodies in the state of Vermont, including the commissioners from the agencies of Agriculture, Natural Resources, Health and Human Services, and Economic Development (Year 2).
Faculty "Meet and Greet"	The goal was to start research conversations between newly hired and established food systems faculty.
Planning Grants	The first round allocated USD 20,000. The second round, as well as a round of pilot project proposals supported by UVM deans, awarded almost USD1 million for use in fiscal year 2013 to two relatively large transdisciplinary pilot projects and one planning grant.

Structure and process remain barriers to the work of the steering committee, a voluntary work force with no formal authority. While the committee has successfully spearheaded many individual events, the question of what exactly the committee is "steering" and who is at the helm have arisen. Since many units across campus engage in food systems work, a major goal of the committee has been to facilitate communication and collaboration among those interested in food systems. However, free exchange of information and team development are not traditionally fostered in academia. Despite good intentions, when faced with competing demands and interests, individuals and individual units often resort to supporting their "inner circle." Overcoming barriers in communication, leadership styles, and fiscal demands has become a major hurdle.

Reallocated faculty lines

In 2010, the university administration re-allocated open faculty positions across the university that would be filled by individuals with disciplinary ties but a “spire focus” in teaching and/or research. Ten new faculty members with food systems expertise were hired in the departments of Animal Science, Anthropology, Geography, the College of Medicine, Community Development and Applied Economics, Extension, and Plant and Soil Science. Nine additional “Spire related” hires have been approved, and searches are underway. The administration effectively moved existing resources into a new strategic direction. However, how new faculty will navigate across the university as well as serve their home departments has not been defined. Current structure remains a barrier. Nevertheless, this innovative approach of reallocating resources led to more cross-university conversations related to transdisciplinary teaching and research.

Bottom-up resource justification

At the end of 2011, the provost asked the steering committee to provide their concept of the priorities that could help UVM become a “premier small research institution with excellence in food systems,” based on the metrics developed by the committee. A substantial budget has been suggested and the administration has a plan to raise those dollars. This is an important and much needed financial commitment that should be forthcoming in fiscal year 2013. In addition, an external advisory board will be appointed. As a land-grant institution, connection with community has been a hallmark since 1862, but this step faces challenges: Who should be on the advisory board? What happens to those who feel excluded? What is its purpose: fund raising, providing advice, strengthening research as well as community ties? To date, some in the outside community already feel excluded despite long-standing outreach and community partnerships that have been central to the development of the transdisciplinary Food Systems Spire of Excellence.

Engaging the Community

Highlighting community partnerships

Vermont communities have long been engaged in the arena of smaller, regionally based food systems. To meld the university research mission with community needs, a meeting was held among stakeholders in 2009 to build collaborative relationships, resulting in a food systems research collaborative. A recent census of faculty partnerships at UVM showed that since 2009 more than 100 faculty and 400 community partners have engaged with models and methods that show promise for the realization of the vision. The collaborative invited faculty and community partners to write for a white-paper series, “Opportunities in Agriculture,” to incentivize journal publication about food systems. However, just as with several other individual food systems activities, there is no formal support for the collaborative.

Peter Shumlin’s election as governor of Vermont in 2010 and his subsequent appointees to the Department of Commerce and Agency of Agriculture brought to the citizens of Vermont a vision of how food systems beyond traditional agriculture can help keep our state economically vibrant through celebration of the Vermont brand and the cachet that our value-added products have in the marketplace. His vision includes implementing a Vermont strategic plan for a vibrant agricultural economy, The Farm to Plate Initiative (Vermont Sustainable Jobs Fund, 2011). This initiative provides UVM with more impetus for a food systems approach, but with it comes the challenge of moving forward while navigating the boundaries between the university’s expertise and mission without the community dictating the research and outreach of the university.

Strong outreach and community collaboration presents some unique challenges, as many eyes look in from the outside with their own ideas of what food systems excellence means. With a myriad of partners, not all can have an actual place at the university table. Outreach is only one component of a land-grant university; it must be grounded in evidence-based research and strong academics. The teaching and research missions,

while informed by the community, are not directed by it.

Continuing education: Educational outreach

UVM's Division of Continuing Education (CE) has partnered with schools and colleges to extend food systems topics through courses, programs, and lectures to the local, regional, national, and global communities. In 2009, the Department of Nutrition and Food Science and CE launched a food systems–focused semester abroad program in Oaxaca, Mexico, to examine farm-to-plate topics in anthropology, political science, nutrition, botany and plant and soil science. In 2010 CE launched a six-month Farmer Training Program, an entrepreneurial approach to small-scale farming that provides new farmers with the academic and practical knowledge necessary to pursue a career in sustainable agriculture. In June 2012, a Food Systems Leadership Institute was launched with support from the current president. With all this activity, structural issues continue to impede true collaboration and connection of food system education across the university, as individual units have little incentive and many obstacles to working across structural boundaries.

Conclusions

Transdisciplinary programs that cross traditional university structure lead to uncharted territory. For every successful effort, a barrier appears, but nevertheless there is progress. Sharing UVM's approach and journey toward a holistic, integrated approach to food systems will be helpful to other institutions as they build their food systems programs. We've learned:

- Transdisciplinary approaches have yet to be widely embraced, despite the growing popularity of the buzzword.
- All new initiatives take time, but there are institutional process barriers that lengthen the timeline for establishing food systems programs, which require more than the typical one department or college approval process.
- Momentum is gained as more initiatives and activities occur, but many initiatives are classified as one-time events. There

needs to be a dedicated entity to “connect the dots” and communicate success.

- Alignment of the administration, politics, the community, and the faculty is key, but this is not easy to accomplish and is likely a continual work in progress. There needs to be a structure that facilitates communication and coordination.
- A committed core group of faculty, staff, students, and administrators needs to be in place to keep the initiative moving forward, but its work must be communicated widely so as to not perpetuate a perception that people are not included in the efforts.
- University-wide initiatives are difficult to nurture, but the Food Systems Initiative does not, nor should it, sit in a specific department or college. Current university structures (even centers and institutes) do not appear to be as effective as had been hoped to facilitate these endeavors.
- A balance of top down/bottom up approaches is necessary, but tensions between administration and faculty have historically been an issue in institutions of higher education. Transdisciplinary initiatives cause increased tension, and another layer of administration may be needed above the dean's level and below the provost.
- Resources beyond faculty and student interest are necessary. Although many one-time events can be accomplished through volunteer efforts, substantial resources must be found and allocated if food systems is to succeed at an institutional level.

While institutions across the country struggle with transdisciplinary food systems initiatives, the UVM example indicates that regardless of the process, building a base is critical. While different universities may answer the questions highlighted in table 1 in different ways, the UVM experience provides background and context, providing hindsight that can be used as foresight by others in formulating their own food systems approaches. Meanwhile, the UVM initiative continues into fiscal year 2013.



References

- Baker, D., Koliba, C., Kolodinsky, J., Liang, K., McMahon, E., Patterson, T., & Wang, Q. (2009). Moving toward a trans-disciplinary approach in the land grant system: A case study. *NACTA Journal*, 53(2), 34–42.
- Fields, A., Hoiberg, E., & Othman, M. (2003). Changes in colleges of agriculture at land grant institutions. *NACTA Journal*, 47(4), 7–15.
- Food Day. (2011). *About Food Day*. Retrieved from <http://foodday.org/about-food-day/>
- Food Systems Leadership Institute. (n.d.). *About The Food Systems Leadership Institute*. Retrieved from the Food Systems Leadership Institute website: <http://harvest.cals.ncsu.edu/applications/fsli/index.cfm?showpage=110>
- Galt, R. E., Clark, S. F., & Parr, D. (2012). Engaging values in sustainable agriculture and food systems education: Toward an explicitly values-based pedagogical approach. *Journal of Agriculture, Food Systems, and Community Development*. Advance online publication. <http://dx.doi.org/10.5304/jafscd.2012.023.006>
- Jacobsen, K. L., Niewolny, K. L., Schroeder-Moreno, M. S., Van Horn, M., Harmon, A. H., Chen Fanslow, Y. H., . . . Parr, D. (2012). Sustainable agriculture undergraduate degree programs: A land-grant university mission. *Journal of Agriculture, Food Systems, and Community Development*. Advance online publication. <http://dx.doi.org/10.5304/jafscd.2012.023.004>
- Jordan, H. L. (2006). *Marketing local foods in a conventional setting* (Unpublished master's thesis). Burlington, Vermont: University of Vermont.
- Lieblein, G., Francis, C., Barth-Eide, W., Torjusen, H., Solberg, S., Salomonsson, L., . . . Lund, V. (2000). Future education in ecological agriculture and food systems: A student-faculty evaluation and planning process. *Journal of Sustainable Agriculture*, 16(4), 49–68. http://dx.doi.org/10.1300/J064v16n04_06
- Mendes, W., & Nasr, J. (2011). Preparing future food system planning professionals and scholars: Reflections on teaching experiences. *Journal of Agriculture, Food Systems and Community Development*, 2(1), 15–52. <http://dx.doi.org/10.5304/jafscd.2011.021.022>
- National Research Council of the National Academies [NRC]; Division on Earth and Life Studies; Board on Agriculture and Natural Resources Board on Life Sciences. (2009). *Transforming agricultural education for a changing world*. Washington, D.C.: The National Academies Press.
- Nord, A. (2011, November). *Moving UVM to 20 percent by 2020*. Presentation to the UVM Food Systems Steering Committee, Burlington, Vermont.
- Parr, D. M., Trexler, C. J., Khanna, N. R., & Battisti, B. T. (2007). Designing sustainable agriculture education: Academics suggestions for an undergraduate curriculum at a land grant university. *Agriculture and Human Values*, 24(4), 523–533. <http://dx.doi.org/10.1007/s10460-007-9084-y>
- Pohl, C., von Kerkhoff, L., Hirsch Hadorn, G., & Bammer, G. (2008). Core terms in transdisciplinary research. In G. Hirsch Hadorn, H. Hoffmann-Riem, S. Biber-Klemm, W. Grossenbacher-Mansuy, D. Joye, C. Pohl, U. Wiesmann, & E. Zemp (Eds.), *Handbook of Transdisciplinary Research* (pp. 427–432). Dordrecht: Springer. http://dx.doi.org/10.1007/978-1-4020-6699-3_28
- Real Food Challenge. (n.d.). *What we do*. Retrieved from <http://realfoodchallenge.org/>
- Real Food Challenge. (n.d.). *Real Food Calculator*. Retrieved from <http://realfoodchallenge.org/calculator>
- Strolling of the Heifers. (2012). Vermont tops Strolling of the Heifers Locavore Index; state tops nation in local food availability. Retrieved from <http://www.strollingoftheheifers.com/component/content/article/181-locavore-index-2012>
- U.S. Department of Agriculture, Agricultural Marketing Service. (2011). *Number of operating farmers markets* [Chart]. Retrieved from <http://www.ams.usda.gov/AMSV1.0/ams.fetchTemplateData.do?template=TemplateS&navID=WholesaleandFarmersMarket&leftNav=WholesaleandFarmersMarkets&page=WFMFarmersMarketGrowth&description=Farmers%20Market%20Growth&acct=fmrdirmt>
- U.S. Department of Agriculture, Economic Research Service. (2009, September 1). *Organic agriculture: Organic market overview*. Retrieved from <http://www.ers.usda.gov/briefing/organic/demand.htm>

- U.S. Department of Agriculture, National Institute of Food and Agriculture. (2001). *NRI annual report: Fiscal year 2001: National Research Initiative Competitive Grants Program*. Retrieved from http://www.nifa.usda.gov/funding/nri/pdfs/2001_ann_rpt.pdf
- U.S. Department of Agriculture, National Institute of Food and Agriculture. (2004). *National Research Initiative Competitive Grants Program annual report fiscal year 2004*. Retrieved from http://www.csrees.usda.gov/funding/nri/pdfs/2004_ann_report.pdf
- University of Vermont [UVM] College of Agriculture and Life Sciences [CALS]. (2011). *Introduction to the newly created Food Systems minor* [Brochure]. Retrieved from http://www.uvm.edu/~pss/pssdeptweb/brochures/Food_Systems_Brochure.pdf
- Vermont Sustainable Jobs Fund. (2011). *Farm to plate initiative: A snapshot of Vermont's food system*. Retrieved from <http://www.vsjf.org/project-details/5/farm-to-plate-initiative>
- Wickson, F., Carew, A. L., & Russell, A. W. (2006). Transdisciplinary research: Characteristics, quandaries and quality. *Futures*, 38(9), 1046–1059. <http://dx.doi.org/10.1016/j.futures.2006.02.011>

The “buy local” challenge to institutional foodservice corporations in historical context

Sarah J. Martin,^{a, *} Balsillie School of International Affairs, University of Waterloo

Peter Andrée,^b Department of Political Science, Carleton University

Submitted 26 October 2011 / Revised 15 January and 8 March 2012 / Accepted 29 March 2012 / Published online 3 June 2012

Citation: Martin, S. J., & Andrée, P. (2012). The “buy local” challenge to institutional foodservice corporations in historical context. *Journal of Agriculture, Food Systems, and Community Development*, 2(3), 161–175.
<http://dx.doi.org/10.5304/jafscd.2012.023.008>

Copyright © 2012 by New Leaf Associates, Inc.

Abstract

Public institutions such as universities and hospitals are being increasingly encouraged by social movements to direct their substantial foodservice budgets toward supporting local farmers and producers. This paper examines a key obstacle to the buy local challenge: the transnational corporations who are contracted by many public institutions in North America to provide foodservices. The institutional food sector is dominated by three large transnational foodservice corporations: Compass Group, ARAMARK, and Sodexo. It is their centralized supply chains and management structures, along with a dependence on prepared and “ready to eat” food, that are barriers to local

food procurement. Up to this point, there has been little scholarly attention to the origin and organization of these corporations.

This paper’s examination of the history and political economy of the institutional foodservice industry illustrates a long association between these companies and public-sector goals over the last 70 years. Comparing past public-sector goals to contemporary campaigns directed at institutional foodservice is therefore instructive. We examine three different political economies that have fostered the development of these corporations: the Second World War, the post-war era from 1945 to the 1970s, and the neoliberal era beginning in the 1970s through today. While recognizing that the barriers to local procurement are real, we also argue that the structure and competitive dynamics of these corporations offer opportunities to make positive changes.

Keywords

ARAMARK, Compass Group, food value chain, industry opportunity structure, institutional foodservice, local food, political economy, social movements, Sodexo

^{a, *} *Corresponding author:* Sarah J. Martin, PhD candidate, Balsillie School of International Affairs, University of Waterloo, 67 Erb Street West, Waterloo, Ontario N2L 6C2 Canada; smartin@balsillieschool.ca

^b Peter Andrée, Associate Professor, Department of Political Science, Carleton University, Ottawa, Ontario Canada.

Note: The authors would like to thank the anonymous reviewers who strengthened the article through their thoughtful critique and helpful suggestions.

Introduction

Academics, social movement organizations, and food system practitioners are calling for public institutions to support local farmers with their substantial foodservice budgets (e.g. Équiterre, 2010; Sustain UK, 2009, 2012; Vogt & Kaiser, 2008) and, in turn, to help “scale up” local food systems (e.g. Friedmann, 2007). This shift in resources has the potential to build and strengthen local food distribution infrastructures and support additional new links between local producers, processors, and consumers (Andrée, Dibden, Higgins, & Cocklin, 2010; Goodman, 2003; Renting, Marsden, & Banks, 2003). This paper examines the challenges — as well as the opportunities — associated with a key obstacle to the shift toward local procurement: the transnational foodservice corporations who operate within most of these public institutions (Sustain UK, 2009).

The institutional food sector in North America is dominated by three large foodservice corporations: Compass Group, ARAMARK and Sodexo. These transnational corporations (TNCs) are part of a surprisingly large foodservice sector. Two of them are among the largest private employers in the world, with Compass ranked eleventh with 428,202 employees and Sodexo ranked as twenty-second with 379,137 employees (Fortune, 2011). Although ARAMARK does not make the ranking, it is also very large, with 254,000 employees (Datamonitor, 2009). Globally, institutional food accounts for 35% of the total foodservice market, second only to cafés and restaurants at 46% and more than fast food at 18% (Datamonitor, 2009). These three corporations are not the only providers of institutional foodservice (for example, some institutions keep foodservice in-house), but they are the largest operators and have a global reach. Their business model is based on centralized supply chains and management structures, with a reliance on prepared and “ready to eat” food, intended to lower procurement and labor costs.

When placed next to the vital and idiosyncratic local food movement — over 2,300 local food projects in Canada alone (Egbers & Canadian Cooperative Association, 2009), from new cooperatives to farmers’ markets — the institutional

food sector may appear to be fixed and intransigent. However, there are also opportunities for change based on the very structure of these TNCs and their competitive practices. The political and economic history of the institutional foodservice industry illustrates a long association between these companies and public-sector goals. Just as historical events and campaigns offer constructive comparisons to contemporary social movement campaigns, comparing past public-sector goals to current efforts directed at institutional foodservice provides a helpful comparison.

This paper argues that social movement organizations and food system practitioners can actually leverage the structure of the foodservice industry and create opportunities for change. Drawing on Schurman (2004) and Schurman and Munro’s (2009) research on “industry opportunity structures,” which identified several aspects of the biotech industry structure that made it particularly vulnerable to social movements’ critiques in the 1990s and early 2000s, and applying these concepts to the institutional food service industry, we show how strategic pressure can be applied to support sustainable local food systems. We argue that it is the foodservice industry’s structure and location in public institutions such as universities and hospitals that make it especially vulnerable to critique and boycotts, thus opening them to new ways of doing business.

Context and Theory

The buy local challenge to institutional food is part of a global trend. For example, the University of Toronto used its sustainability policies to mandate a relationship between its foodservice providers, ARAMARK and Chartwells (a subsidiary of Compass Group), and an Ontario-based third-party certifier of local and sustainably produced foods called Local Food Plus (LFP). On this basis, the foodservice companies began purchasing local products in volume in 2007 (Friedmann, 2007; Local Food Plus, n.d.). Similar efforts to reconnect local agriculture with institutional food providers have been made in Rome, the U.K., and the U.S. (Bagdonis, Hinrichs, & Schafft, 2009; Edible Strategies Enterprises, 2007; Izumi, Wright, & Hamm, 2010; Morgan & Sonnino, 2007; Seyfang,

2006). These efforts address a variety of public policy goals, including sustainable agriculture, public health, and the environment. Local food procurement by institutional foodservices would also help to “re-embed” the market (Polanyi, 2001 [1944]; Raynolds, 2000) within social relations and ecological values (Morgan & Sonnino, 2007; Sonnino, 2007).

With all of the potential benefits of local foods, it is no surprise that social movements are calling for its procurement by large public institutions. However, the companies that hold catering contracts at these institutions, such as the corporations profiled here, appear to be the major roadblock in the realization of these goals (Sustain UK, 2009). This paper seeks to better understand these obstacles, by considering both the history and current operational practices of these corporations. Unfortunately, there is an absence of critical academic research on foodservice practices. Most interest in this sector has addressed business and marketing practices (Mikkelsen, Kristensen, & Nielsen, 2005; Yigit, Tengilimoglu, Kisa, & Younis, 2007), or has a dietary and health focus (Dupertuis, Kossovsky, Kyle, Raguso, Genton, & Pichard, 2003; Edwards, Williams, Hartwell, & Schafheitle, 2009). As noted above, recent studies discuss how institutional foodservice companies are being challenged by social movements to change the food they sell, but no one has yet explored the origins of institutional food and how these businesses operate.

To understand the challenges and opportunities associated with the structure of institutional food for the local food movement, we draw on two theoretical approaches. To begin, we highlight how changing political and economic structures (i.e., the political economy) have shaped the operation of institutional foodservice over the last 70 years. Second, we look to the emerging literature on “industry opportunity structures” (e.g., Schurman, 2004), and its four factors: inter-firm competitiveness; the nature of the goods sold; corporate cultures; and relationships in the industry’s organizational field. This provides a launching point for our analysis of why and how institutional foodservice corporations are responding to current calls for change. Together,

these two frameworks help us make sense of past changes while also helping us think strategically about how to encourage further change, this time toward more local and sustainable procurement.

Methods

Since little academic work has been done in this area, we rely on a variety of sources for this study. For the historical context we draw heavily on primary sources, including newspapers and industry literature from the Second World War, company websites, government records, and an interview with a Canadian labor union researcher conducted in 2007. Secondary sources for this historical research include foodservice trade and business journals, as well as academic papers that trace company histories.

These sources were supplemented by six in-depth interviews conducted in 2007 with individuals working in the institutional foodservice industry in three Canadian universities (as approved by Carleton University’s Research Ethics Board). The interviewees were two foodservice workers (a cook and a server) with over 25 years’ experience, a manager in charge of a large residence foodservice unit, a manager of foodservice procurement, and an associate director who oversaw a university’s extensive foodservice operations. Interview questions focused on how foodservice and procurement had changed during their employment and what the informants saw as the barriers to local food procurement.¹ In addition, one of the authors (Sarah Martin) worked as a cook and chef for 20 years, including at a university. It was through the move from working in positions where she sourced local food to working in a university setting that many of the barriers to local food provision became clear, thereby starting us on this research path.

Historical Analysis

The next three sections trace the development of today’s foodservice companies through three

¹ For example: How do you decide what food to buy? How has procurement changed since you first began? How do you make decisions on what suppliers to use? Has this changed since you began?

specific political economies over the last 70 years: The Second World War, the post-war era to the 1970s, and the 1970s to today. This paper then turns to examining contemporary issues associated with this industry in the light of the “buy local” challenge described above.

Industrial Feeding

During the Second World War, Allied states were confronted with the twin problems of food rationing and retaining efficient workers for the war production machine. As war production became the primary aim, especially for the U.S., war plants became a site for government intervention to maximize workers’ production and efficiency. For example, governments employed professional nutritionists to direct the feeding of nutritionally ‘vulnerable’ industrial workers. In addition, the inclusion of women in the workforce, along with round-the-clock shifts, meant that home-cooked meals could not be relied on to provide nutritionally ‘correct’ feeding. In order for experts to address these problems (for instance, how to feed 30,000 people at the Douglas aircraft plant in Santa Monica, California, in an efficient and nutritious manner?) a new model of mass feeding was developed. The solution was a program of “industrial feeding” (Goodhart, 1943) which applied the rules of efficient production (sometimes referred to as productivism) with the rules of the new nutritional science (a.k.a. nutritionism, Scrinis, 2008) to workers’ feeding to the exclusion of other considerations. In short, industrial feeding scientifically fuelled industrial workers to increase war production. One of industrial feedings’ most enthusiastic supporters was Sir Curtis-Bennett, a UK treasury official who published a book on the subject in 1947. He described industrial feeding as part of “the nucleus of a larger system of industrial welfare” where “science and industry could combine profitably...in evolving a more efficient individual” (Curtis-Bennett, 1949, pp. 301–303).

Industrial feeding was promoted at the same time by legislation in the U.S., Britain, Canada, and France during the Second World War and was implemented by government nutritionists working as industrial feeding specialists in the U.S. and Canada. The industrial feeding program was an

antidote to the loss of labor, especially from women as they moved out of the homes and into the factories, and to industrial workers’ “poor dietary practices” (“Industrial Feeding Held Vital in War,” 1944, p. 18). These programs were a panacea to worker-related production issues. The use of “proper feeding installations” was credited with increased production, fewer industrial accidents, improved morale, and cost savings (“Feeding at Plants Cuts Absenteeism,” 1944). Finally, these programs were a part of “capitalism’s answer to industrial unrest” (Curtis-Bennett, 1949, pp. 256–257). For instance, to curb rising labor unrest due to war-time wage freezes, the Office of Price Administration shifted meat distribution from individuals to the in-plant feeding system, and foodservices to subsidize wages (“Roosevelt Plans to Cut Living Cost,” 1943).

Outside the United States, Great Britain’s government began a policy of industrial feeding as the War Emergency Regulations required workplaces engaged in the war effort, such as government offices, munitions plants, and any employer with over 250 workers, to provide canteens (Curtis-Bennett, 1949, p. 256). Corporate taxes in the UK were also restructured to support industrial feeding. This encouraged the growth of “big industrial catering firms” that were thought to have the highly specialized expertise needed for industrial feeding (Curtis-Bennett, 1949, pp. 249–250).

Institutional foodservice in France also began during the Second World War as Vichy France began to direct food to workers. Specifically, a tax break was given to business cafeterias as part of a larger labor code under German occupation in 1942 and 1943 (Mériot, 2006, pp. 49–51). In Canada, the Nutrition Service was established in 1941 as part of the Department of Pensions and National Health. The first function of the service was to “study the food facilities in defense industries from a nutritional viewpoint, and to suggest improvements where possible” (Dominion Bureau of Statistics, 1944). The program had priority in accessing rationed foods, equipment, and construction material that was otherwise scarce during wartime (Goodhart & Pett, 1945, p. 179).

By the end of the war the industrial feeding system was serving seven million workers in the

United States, and more than half of U.S. plants had been upgraded to “streamlined” or “fast feed” cafeterias (“Reconverted Industry to Continue,” 1945). This mass-feeding model was similar to factory lines with plans that detailed how workers should move through the cafeterias for efficient operation. Shortly after the war, the issue of agricultural surpluses emerged as a problem in the U.S., and industrial feeding came to be seen as part of the solution to that too: “The prospect of Government use of the great industrial feeding system, developed during the war, which feeds 7 million workers, [can now become] an avenue for moving unexpected agricultural surpluses” (“U.S. Buying Meat for War Plant Use,” 1945, 25).

All of these resources concentrated on industrial feeding led to the rapid growth of private caterer-run operations, especially in large plants (“Business of Keeping Factory Workers Well Fed Is Booming,” 1942; “Reconverted Industry to Continue,” 1945). The wartime equipment, nutritionists, and industrial feeding specialists had created a new model of cafeteria service while at the same time subsidizing the development of private firms. Their growth was further accentuated by another cultural shift: snacks. It was during the war years that there was an expansion of between-meal snacks on the factory floor, with carts run by these companies bringing coffee, milk, and ice cream directly to the workers (“Business of Keeping Factory Workers Well Fed Is Booming,” 1942).

The progenitors for both ARAMARK and Compass benefited from these programs. The two founders of ARAMARK initially met during the Second World War in a Douglas Aircraft plant where they had independent contracts to supply vending machines (ARAMARK, n.d.). Factory Canteens Ltd., which later became Compass Group, was also established during the Second World War in 1941 (Grant, 2001a). Significantly, the story documented through war-time news articles shows that the foodservice corporations of today came into existence through active government, industry, and labor involvement. This model was not simply a product of the market forces of supply and demand. Rather, it helped to fulfill larger state priorities related to the war effort.

The Postwar Era: 1945–1970s

The second era of institutional food emerged within the economic, political, and social contexts of the post-war years. These years, with a strong emphasis on social welfare, proved to be a perfect incubator for the further development of food-service TNCs. Rising agricultural production combined with increased food processing and foodservices set the foundation for robust growth of these corporations.

As noted, the two founders of ARAMARK, Davre Davidson and William Fishman, met at a Douglas Aircraft plant in California where they each were independently providing vending services for plant workers (ARAMARK, n.d.). After the war, Davidson’s company pioneered vending machines in schools and universities (Becker, 1960). Both vending machine operators — known then as automatic retailers — wanted to expand into what they called “manual” food-services. Soon after merging into the Automatic Retailers of America (ARA) in 1959, they acquired Slater Systems, the largest U.S. foodservice operator and contractor for colleges and universities (Grant, 2001c).

ARA continued moving into new service areas, including nursing homes and magazine distribution companies, and by 1964 it was operating over 750 manual food operations. ARA’s monopoly in the vending machine market caught the attention of the Federal Trade Commission (FTC), which ordered it to divest in the market. This would be the first in a series of run-ins with U.S. federal agencies. In the late 1960s, ARA continued its expansion and moved into airline catering, resort management, and laundry services, among others. It was during this time, in 1967, that Factory Canteens in Britain was bought by Grand Metropolitan, a large conglomerate — an indication that consolidation was occurring in the British market as well (Grant, 2001a, 2001b). In France, Sodexho (*Société d’Exploitation Hôtelière* and today known as Sodexo) began to expand its food-services from maritime operations to restaurants serving offices, schools, and hospitals (Grant, 2001b).

ARA ran into trouble with the FTC again in 1972 when anticompetition charges were brought

against it and it was charged with price fixing (Grant, 2001c). The company was again indicted by a grand jury in 1981, this time for bid-rigging in the student transport division (Grant, 2001c). This evidence shows that although ARA was able to consolidate and grow within the U.S. domestic market, and benefited from the industrial expansion and new services like airline catering, it is also clear that federal agencies were active in policing ARA's business practices as part of the post-war era's social contract. In short, active government regulation checked excessive market control with the aim of ensuring fair competition.

Transnational Foodservice Companies in the Neoliberal Era

The social contract of the post-war years included state intervention in the economy and support for social welfare projects. In contrast, the neoliberal era (roughly the mid-1970s to today) is known as a period during which that state intervention has been "rolled back" and pro-business regulations are "rolled out" (Peck & Tickell, 2002). In North America, this period produced an "internationalized agri-industrial food economy" (Winson, 1992, p. 109). The service sector in general experienced corporate consolidation and expansion into all corners of the globe through this period, facilitated by the liberalization of regulations, outsourcing, and privatization by governments (Winson, 1992). This section shows how the institutional food sector, in particular, benefited from these changes.

As 1970s national economic projects began to decline and capital was free to move beyond borders (Hobsbawm, 1994), it is possible to trace an unraveling of the regulations, subsidies, and price support that protected domestic markets. This new era led to the restructuring, or what has been termed the "McDonaldization," of labor, which was characterized by low wages and the erosion of organized labor, having the effect of depressing wages overall (Ritzer, 1998). However, as regulations, subsidies, and price supports began to unravel in the United States, Europe, and Canada, agriculture remained the exception. The result was that institutional food operators came to benefit from both shrinking labor costs and state-subsidized agriculture.

The expansion of foodservice began to jump national borders as capital was freed up during the 1970s. For example, ARA expanded into Europe and Canada in the late 1970s. ARA thus became the largest foodservices company in Canada with the purchase of VS Services (ARAMARK, n.d.). New management in the 1980s changed ARA's name to ARAMARK in the 1990s, and the food-services division in particular began to prosper. Despite ARA's many previous prosecutions by the FTC, ARAMARK was not prosecuted again.

In Britain, the foodservice arm of Grand Metropolitan, a food and spirits company and owner of Factory Canteens, was spun off into Compass Group in 1987. Compass began with the goal becoming the world's largest foodservice corporation. Thereafter an ambitious plan of expansion began with the acquisition of railway caterers, airline catering, and Canteen Corp., the third largest vending and foodservice company in the U.S. in the early 1990s. By purchasing Eurest in 1995, Compass became the largest foodservice organization in the world in less than a decade (Grant, 2001a).

During the 1990s and into the 2000s Sodexo, ARAMARK, and Compass all increased consolidation and experienced "record expansion" (Grant, 2001a, p. 123). Sodexo moved into prison management, including foodservices, in the U.S., bought the largest British catering firm, and in 1998 bought the foodservice arm of Marriott (Grant, 2001b). Compass moved into new sites in Africa and purchased Brazil's largest caterer. The widespread growth and consolidation of food and agriculture TNCs during the last two decades (Clapp & Fuchs, 2009) is exemplified by institutional foodservice corporations. Consolidation has contributed to efficiencies of scale and given food-service TNCs the ability to negotiate advantageous procurement contracts. And expansion continues. Most recently, ARAMARK was the 2008 Beijing Olympics official caterer and proclaimed that this would provide access to China's "untapped" USD170 billion educational catering market (Tschang, 2008).

As government services were privatized, food-service TNCs began to change the structure of labor in this industry. For example, the privatiza-

tion of health support services in British Columbia, Canada, led to the elimination of 8,500 public-sector jobs, including foodservice workers, and it is reported that pay rates for the affected positions were cut by more than 40 percent (Stinson, Pollak, & Cohen, 2005). The privatization of public services enabled impressive growth for the foodservice TNCs, but also shifted public resources away from foodservice workers and local suppliers.

Although the contemporary global foodservice industry is dominated by three foodservice TNCs, their marketing practices and branding strategies make them almost invisible to the consumer. Branding is used to differentiate between workplaces and institutions as well as seemingly to expand foodservice within single outlets. For instance, Compass uses product differentiation to leverage sales by creating brands for the different service sectors. In North America alone it operates Chartwells for education, Morrison for healthcare, Wolfgang Puck Catering, Eurest for business, and Canteen Services for prisons. Often nested within these outlets, TNCs buy and operate franchises, such as Starbucks and Tim Horton's, side-by-side, which further expands the market in the same campus or hospital. At the same time as fostering the illusion of qualitative differences between cups of coffee, the corporations benefit from the economies of scale that come with centralized management of supplies and labor.

Contemporary Issues

Institutional food outlets are primarily located in public institutions such as hospitals, long-term care facilities, and the educational sector such as universities and colleges (Datamonitor, 2008) and these public institutions increasingly require revenue streams. Foodservice TNCs have developed foodservice models to increase sales and reduce costs in order to compete for contracts, and one of their main tools for reducing purchasing costs is to achieve economies of scale (Datamonitor, 2007). Foodservice contractors are also shifting away from the cafeteria model and now use multiple outlets and sophisticated branding and food production techniques to increase sales and reduce labor costs. Capital investments are part of long-term contracts and are used to increase market

penetration by expanding outlets on campuses by adding, for example, convenience stores and coffee kiosks (Lawn, 2007). In addition, the model is reliant on cash rebates from large food manufacturers (FoodService Director, 2001), which dictate the kind of food that is purchased and offered for sale.

The largest cost area for foodservice is labor, and a great deal of energy is focused on reducing and controlling these costs. For example, major capital investments are used to replace labor-intensive food production with convenience products such as frozen and preportioned meals, which only requires a worker to heat and serve (Creed, 2001). Foodservice TNCs also have sophisticated strategies to deal with unions in order to keep costs down, and the global reach and centralized nature of TNCs puts the dispersed union movement at a distinct disadvantage. For example, in Canada there are six different unions that negotiate with foodservice TNCs, and the companies often negotiate with the weakest unions first in order to depress wages (M. Luff, personal communication, December 13, 2007). Successful labor strategies are quickly deployed from one country to another. This situation is exacerbated by the fact that the sector employs marginalized communities that are particularly vulnerable, such as new immigrants who may not be aware of their rights at the workplace and international students on campuses (M. Luff, personal communication, December 13, 2007).

The privatization of government services opened up new markets for foodservice TNCs (King, 2000), which included foodservices in Canada. As services were outsourced, there was a loss of unionized public-sector jobs. While some of these employees have been hired by foodservice TNCs, few contracts have remained unionized (M. Luff, personal communication, December 13, 2007). No figures are available for union membership, but the institutional foodservice sector is reported to have one of the lowest union densities in comparison to other foodservice sectors (M. Luff, personal communication, December 13, 2007). Furthermore, in 2007 a new way of restructuring labor in Canada was initiated when Compass applied to bring workers into BC under the

Temporary Foreign Worker Program because it claimed it could not find employees to work in the Vancouver Island Hospitals where it had a service contract (Hospital Employees' Union, 2007).

Consolidation of the TNCs has produced a highly concentrated institutional food sector; any new entrants to the sector are at a disadvantage because of the established economies of scale and supply chains, and most importantly, capital. Smaller operators routinely lose contracts because they are unable to offer the capital investments that are now part of contract negotiations (Elan, 2005). As a result of roll-backs in funding for education and health care, public institutions are now demanding more financial contributions. Long-term, multiyear foodservice contracts typically include terms of exclusivity and require extensive capital expenditures on the university infrastructure, such as new construction or improvements to existing foodservice facilities (Porter, 2006). These investments, however, are portrayed as added bonuses:

One way or other...Contractors are [expected] to foot a large piece of renovation....It's not free money they are going to throw at the institution. It's going to be on the backs of...probably the customers in the end in terms of service and quality....The contractors are in profit mode and they need to get their money back because of shareholders and everything else that they have to pay at the end of the day. (Manager 3, personal communication, March 3, 2007)

For example, Carleton University in Ottawa, Ontario, signed a new 10 year contract with ARAMARK in 2003 that included a CAD3.5 million investment in "facility upgrades." ARAMARK won one of the largest institutional food contracts in Canada (Chappell, 2003), and the university obtained capital improvements. In addition, the Carleton contract with ARAMARK also includes a minimum cash commission of \$250,000 annually, thereby providing a steady revenue stream to the university (Chappell, 2003).

As institutions look to foodservice for revenue, the squeeze on labor and food costs will continue.

During the Second World War, the state leveraged industrial feeding to "solve" industrial unrest and worker productivity. Today, institutional food helps to "solve" decreasing state revenue for education and health care. This raises questions about how local food system advocates can work with the institutional food sector.

Opportunities for Change

Despite the many challenges discussed above, there are also opportunities, and some institutional food provision is moving in a new direction. The literature on industry opportunity structures helps us understand why. It is useful to consider institutional food corporations in light of the four factors identified in our introduction as critical to an industry's willingness to shift in relation to a social movement organization's goals: interfirm competitiveness; the nature of the goods sold; corporate cultures; and relationships in the industry's organizational field (Schurman, 2004).

With regard to interfirm competitiveness, the above discussion shows how competition for contracts has pushed the main players in this field to lower costs above anything else. However, it is the very nature of the competition that has contributed to the success of the third-party Local Food Plus's intervention in the University of Toronto (U of T) contract. The U of T contract with its foodservice TNCs was a direct result of the university's sustainability policy, designed to ensure that the university foodservice outlets provide a minimum quantity of sustainably produced foods grown within 250 km (155 miles) of Toronto. LFP (2007) defines sustainability by a number of criteria, including the use of more environmentally friendly growing techniques, energy conservation, animal welfare, habitat protection, and on-farm labor standards. Since 2007, LFP products have also been picked up by a small supermarket chain, and demand continues to outstrip supply (Friedmann & McNair, 2008). When the call for tenders (request for proposals, in U.S. parlance) stipulated that a certain percentage of the goods provided within a public institution must meet specific criteria, each of the three major players in this sector worked with Local Foods Plus and the university to submit bids (Friedmann, 2007). In other words, the

extremely tight competition and profit-seeking strategies in this field mean that all three players are willing to change their purchasing practices when required by a call for tenders.²

One might expect that the standardization of goods sold by institutional food providers means there is little reason for them to adopt locally produced product. On the one hand, the companies do the branding or adopt well known national and international brands (in soft drinks, coffee, etc.), thus limiting opportunities for product differentiated by local origin. On the other hand, the fact that these companies have control over their supply chains means that they can decide to buy local product and then develop a brand for it. A similar strategy has been seen in the retail sector over the last 20 years. Previously, grocery stores in North America were filled with product branded by the food processors. More recently, however, and illustrating a general shift from processor to retailer power in the food system, the retailer has developed higher-end “house” brands based on undifferentiated inputs (Barndt, 2008). This same strategy of developing house brands has also been pursued by the institutional food providers, and may present an opportunity if pursued in partnership with (and thus dependent on) local suppliers, since many of the fresh food categories in which they would supply product are not already dominated (in the minds of the customers) by powerful national and international brands.

Corporate cultures represent a clear challenge to the local food movement, since such foods rarely fit in with the trend across all three of these companies toward lower costs, outsourced processing, and mass scale. Then there is the culture of scientifically defined ‘good’ food, which in the present era tends to be drawn on by companies to promote regulations (whether public or private) that are only suitable to larger rather than smaller-scale processing (Schmidt, 2008). On the other hand, there is evidence that the attitudes of some consumers may be shifting toward preferring less processed foods, or those processed on a smaller scale as a result of the listeria, *E. coli*, and

salmonella outbreaks affecting larger processors that are increasingly in the news (Pollan, 2006, 2010; Taylor, 2008).

Furthermore, other cultures are also relevant here. One is the culture of the institutions where this food is sold. Universities, for example, are typically defined by progressive cultures, and these cultures are affecting policies on campuses that are commensurate with a shift toward local food provision. Take the anti-sweat shop movement, which has managed to get over 250 universities in North America to refuse to sell specific types of clothing (<http://usas.org/>). We have observed the rapid adoption of fair-trade coffees and teas in university cafeterias, supplied via the TNCs of interest here, as a result of growing awareness among consumers around these products. The University of Guelph also only sources free-range eggs, and other universities have also shifted their buying due to specific pressures. As one foodservice manager reported:

The reason we went to free-run eggs is because a group in BC [British Columbia]...was calling all of the directors of university services across Canada and said you should switch to free-run eggs for the humane treatment of chickens. If you don't you will come under scrutiny or negative publicity. You could watch the wave from one end of Canada to the other as every university began to switch over to free-run eggs regardless of costs, regardless of what students wanted. All these intelligent people simply switching for the pressure, rather than the reality of the situation. (Manager 2, personal communication, February 2, 2007)

Another manager acknowledged the effect of the campaigns and reported:

We have gone through the “killer Coke”³ issue, the whole caged egg [vs. free run] thing

² Clarification on this point was provided by an anonymous reviewer.

³ The “Killer Coke” campaign to ban Coke from university campuses was launched in 2003 in reaction to the killings of Colombian workers at Coke bottling plants. A number of campuses did not renew their contracts with Coke due to the pressure (Foust, Smith, & Woyke, 2006).

program from students. (Manager 3, personal communication, March 3, 2007)

These examples show that the cultures of institutions do change, and foodservice providers have to go with these shifts if they wish to remain legitimate in the eyes of their primary customers.

Schurman and Munro (2009) point out that “national” cultures are also important here, meaning the larger sociocultural shifts within which institutions and institutional food providers are embedded. It is on this scale that the local food movement is having an impact on the context in which these TNCs do business, as witnessed by the myriad books and news articles written on this subject in recent years (e.g. Pollan, 2006; Smith & MacKinnon, 2007). Institutional food providers appear to be paying heed to local and sustainable food movements’ calls for change. ARAMARK, the Carleton University food provider noted above, now states on its website that among its “sustainability initiatives” (which include the introduction of biodegradable cutlery and limited composting) is a commitment to supporting local farmers and organic foods:

Dining Services is continuously working on providing a sustainable environment and constantly searching for local suppliers and organic options. Being situated in a Canadian environment where summer is not all year round, local produce is not always available, however when it is available to Dining Services we do purchase and support local farmers. As well we use organic food when it is available and cost efficient to our customers. Currently we do offer organic coffee and tea all year round, as well as organic greens. (ARAMARK, 2010)

While this is a rather vague commitment, and is not tied to the type of contract that LFP has developed at the University of Toronto, it is a clear demonstration that ARAMARK Canada has this issue on its radar screen and recognizes that it needs to adjust to the times when practicable. Moving any further than that would likely require pressure from its main customers: students.

Another consideration is that the people who are often served in some of these public institutions, such as schoolchildren and hospital patients, are considered vulnerable in the eyes of society. This is reflected in the fact that schools and hospitals are often targets for reform such as school gardens, bans on junk food, or farm-to-school programs. This perception can be played upon by local food practitioners.

The final key variables in the industry opportunity structure are the relationships within the industry’s organizational field. The supply chain dynamics noted above are relevant here. Logistics are also important, since centralization is closely associated with the efficiencies of scale that these companies currently achieve; the local food movement must ensure that it can point to midsized local alternatives able to fit within such a system. Most importantly for the purposes of this paper, however, are the relationships between these private companies and the public bodies that hire them to provide food in these institutions. As already noted, these public bodies are increasingly reliant on the contracts with foodservice companies to actually inject cash into the institutions to help support core services such as health and education. This means these institutions may be in a difficult position when asking for new forms of food provision that may increase expenses, and thus lower revenues for the institution. Still, the history of these institutional food providers shows several things very clearly. They have not remained static and they are adaptable to the priorities of the time. In addition, despite the trends of the neo-liberal era, earlier periods show a strong connection between institutional food providers and public policy.

What does this mean for local food systems practitioners and social movement organizations? This history suggests that institutional food providers try to meet policy priorities, whether it is the war effort or local food procurement. Practitioners and social movement organizations can work strategically with institutions through the contract process and sustainability policies to bend food-service contracts, and in turn, the TNCs themselves, toward procurement of local food.

Conclusions

Public institutions are being pressured by social movement organizations to facilitate the scaling up of local food with the aim of furthering sustainable agriculture, health, and environmental goals. However, one of the biggest challenges to local food procurement is the structure of contracted catering companies who operate within public institutions. The institutional food sector can reshape whole supply chains, but their food production practices and corporate structures are resistant to local food procurement because of their reliance on corporate supply chains, centralized management, and the deskilling of labor with the introduction of prepared food. However, there are opportunities tied to the structure of these TNCs and their competitive dynamics. This paper has traced the history and political economy of the foodservice industry, and through the lens of the industry opportunity structure literature we highlight strategic opportunities for social movement organizations to generate further movement toward sustainable local food systems. In particular, we identify a long association between these companies and public-sector goals, and their location in institutions that are particularly vulnerable to social movement organizations' critiques and boycotts, such as universities and hospitals.

There is clearly a tension between calls for institutional food providers to procure local and sustainably produced foods and the foodservice TNCs' historically defined logic, especially the trends of the neoliberal period. When we define sustainability broadly, as Allen and her colleagues (1991) have, to mean participatory and socially just food systems that are a form of resistance to industrial agriculture, this tension becomes especially clear. The institutional foodservice model is, we have argued, the consummate representation of the neoliberal agri-industrial food economy. How then to reconcile the goals of local food movements with institutional foodservice and the TNCs that operate them?

On the one hand, much of the logic of foodservice TNCs seems incommensurable with the aims of local food proponents. For example, the use of sophisticated marketing by foodservice TNCs may lead to sustainability initiatives, such as

local food, becoming part of a branding campaign (a form of greenwashing) rather than making substantive change in how foods are supplied. In addition, local farmers who come to depend on this market may be required to lower prices as foodservice TNCs operate to aggressively lower their own costs. As Freidberg (2007) has illustrated, farmers may be required to yield to TNC standards rather than large TNCs yielding and reconfiguring their operations to accommodate local foods.

On the other hand, there are initiatives of the type represented by LFP. This research concurs with Friedmann (2007) that third-party certifiers may be the best way forward to initiate institutional contracts and to protect local farmers from the pressures exacted by these companies. She specifically points out that the complex foodservice procurement systems may contribute to the traceability of local foods. However, whether third-party certifiers will be truly successful in this endeavor remains unclear. In addition, we think it is important to point out that, given the history of these companies, it is imperative that social-justice requirements related to the foodservice side of the local procurement chain be included within the standards of an organization like LFP. Following Patricia Allen, it is incumbent upon such standards to illuminate and correct the "current lack of food-system justice" (Allen, 2008, p. 158). For us, this includes workers in the institutional foodservice sector. Although there are social-justice provisions for both food producers and growers within the LFP framework implemented at the University of Toronto and other sites, there are no criteria related to supporting foodservice workers within the current framework.

This paper illustrates how institutional foodservice has changed over the last 70 years, aligning with, and being supported by, state priorities in different historical periods. Most recently, the state has shifted its role, and institutional foodservice is not viewed as a site of social welfare but rather as a site of revenue for the public institutions that contract out foodservices. As the neoliberal era produces new kinds of institutional arrangements, we can look to other industries defined by this era, such as the companies that produce and market genetically modified organisms (Andrée, 2007), and

learn lessons from how social movement organization resistance has shaped those industries over time (Andrée, 2011; Schurman & Munro, 2009). If industrial feeding represented an acute form of state intervention during the Second World War, what does the intervention by the local food movement represent, and how will its priorities shape institutional food provision as we move forward? Will the consolidated foodservice industry model even be able to adapt to the new state and public priorities in the twenty-first century? And how should we understand, at a theoretical level, the relations between state, industry, and civil society that these new shifts represent? Clearly, institutional foodservice remains an area ripe for further research.

References

- Allen, P., Van Dusen, D., Lundy, J., & Gliessman, S. (1991). *Expanding the definition of sustainable agriculture* (Sustainability in the balance, Issue Paper #3). Retrieved from <http://casfs.ucsc.edu/publications/sustainability-in-the-balance/expanding-the-definition-of-sustainable-agriculture>
- Allen, P. (2008). Mining for justice in the food system: Perceptions, practices, and possibilities. *Agriculture and Human Values*, 25(2), 157–161. <http://dx.doi.org/10.1007/s10460-008-9120-6>
- Andrée, P. (2007). *Genetically modified diplomacy: The global politics of agricultural biotechnology and the environment*. Vancouver: University of British Columbia Press.
- Andrée, P. (2011). Civil society and the political economy of GMO failures in Canada: A neo-Gramscian analysis. *Environmental Politics*, 20(2), 173–191. <http://dx.doi.org/10.1080/09644016.2011.551023>
- Andrée, P., Dibden, J., Higgins, V., & Cocklin, C. (2010). Competitive productivism and Australia's Eemerging “alternative” agri-food networks: Producing for farmers' markets in Victoria and beyond. *Australian Geographer*, 41(3), 307–322. <http://dx.doi.org/10.1080/00049182.2010.498038>
- ARAMARK. (2010). *Carleton University Dining Services Sustainability Initiatives*. Retrieved from <http://www.campusdish.com/en-US/CA/Carleton/Sustainability/>
- ARAMARK. (n.d.). *History*. Retrieved January 15, 2012, from <http://www.aramark.com/AboutARAMARK/History/>
- Bagdonis, J., Hinrichs, C. C., & Schafft, K. A. (2009). The emergence and framing of farm-to-school initiatives: Civic engagement, health and local agriculture. *Agriculture and Human Values*, 26(1-2), 107–119. <http://dx.doi.org/10.1007/s10460-008-9173-6>
- Barndt, D. (2008). *Tangled routes: Women, work, and globalization on the tomato trail* (2nd ed.). Lanham, Maryland: Rowman & Littlefield.
- Becker, B. (1960, September 30). Big success story: Nuts to soup. *The New York Times*, p. 35.
- Business of Keeping Factory Workers Well Fed Is Booming. (1942, March 26). *Wall Street Journal*, p. 1.
- Chappell, K. (2003, April). Aramark replaces Chartwells as food services supplier — \$3.5 million in facility upgrades planned. *Carleton Now*. Retrieved from <http://carletonnow.carleton.ca/april-2003/aramark-replaces-chartwells-as-food-services-supplier-3-5-million-in-facility-upgrades-planned/>
- Clapp, J., & Fuchs, D. A. (Eds.). (2009). *Corporate power in global agrifood governance*. Cambridge, Massachusetts: MIT Press.
- Creed, P. G. (2001). The potential of foodservice systems for satisfying consumer needs. *Innovative Food Science & Emerging Technologies*, 2(3), 219–227. [http://dx.doi.org/10.1016/S1466-8564\(01\)00034-0](http://dx.doi.org/10.1016/S1466-8564(01)00034-0)
- Curtis-Bennett, N. (1949). *The food of the people: Being the history of industrial feeding*. London: Faber and Faber.
- Datamonitor. (2007). *Canada — Cost foodservice — Competitive Landscape*. Retrieved from <http://factiva.com>
- Datamonitor. (2008). *Foodservice industry profile: Canada*. (p. 1). Retrieved from <http://ebscohost.com>
- Datamonitor. (2009). *Foodservice industry profile: Global*. (p. 1). Retrieved from <http://ebscohost.com>
- Dominion Bureau of Statistics. (1944). *Food consumption in Canada, 1944 and 1945*. Ottawa: Author.
- Dupertuis, Y. M., Kossovsky, M. P., Kyle, U. G., Raguso, C. A., Genton, L., & Pichard, C. (2003). Food intake in 1707 hospitalised patients: A prospective comprehensive hospital survey. *Clinical Nutrition*, 22(2), 115–123. <http://dx.doi.org/10.1054/clnu.2002.0623>

- Edible Strategies Enterprises. (2007). *Contending with the local food access puzzle: Final project report to the BC Medical Services Foundation*. Nanaimo, British Columbia: BC Medical Services Foundation. Available at <http://www.ediblestrategies.com>
- Edwards, J. S. A., Williams, P., Hartwell, H. J., & Schafheitle, J. (2009). Comments on prison foodservice: England vs. Australia. *Journal of Foodservice*, 20(4), 153–156. <http://dx.doi.org/10.1111/j.1748-0159.2009.00142.x>
- Egbers, A., & Canadian Co-operative Association. (2009). *The lay of the land: Local food initiatives in Canada*. Ottawa, Ontario: Canadian Co-operative Association. Retrieved from Canadian Co-operative Association website: http://www.coopscanada.coop/public_html/assets/firefly/files/files/The Lay of the Land Final June 16 2009.pdf
- Elan, E. (2005). Regional players gird for on-site onslaught. *Nation's Restaurant News*, 39(47), 47–50.
- Équiterre. (2010). equiterre.org - For socially and environmentally responsible choices. Retrieved January 15, 2012, from <http://www.equiterre.org/en>
- Feeding at Plants Cuts Absenteeism: Head of WF Plan for Industry Tells Chicago Technologists 12,500,000 Will Benefit. (1944, May 31). *New York Times*, p. 16.
- FoodService Director. (2001). New items on the way: College rebates growing. *FoodService Director*, 14(1), 22.
- Fortune. (2011). Global 500, 2011: Top Companies: Biggest Employers. *Fortune*. Retrieved from <http://money.cnn.com/magazines/fortune/global500/2011/performers/companies/biggest/>
- Foust, D., Smith, G., & Woyke, E. (2006, January 23). “Killer Coke” or Innocent Abroad? *BusinessWeek*, (3968), 46–48.
- Freidberg, S. (2007). Supermarkets and imperial knowledge. *Cultural Geographies*, 14(3), 321–342. <http://dx.doi.org/10.1177/1474474007078203>
- Friedmann, H. (2007). Scaling up: Bringing public institutions and food service corporations into the project for a local, sustainable food system in Ontario. *Agriculture and Human Values*, 24(3), 389–398. <http://dx.doi.org/10.1007/s10460-006-9040-2>
- Friedmann, H., & McNair, A. (2008). Whose rules rule? Contested projects to certify “local production for distant consumers.” *Journal of Agrarian Change*, 8(2–3), 408–434. <http://dx.doi.org/10.1111/j.1471-0366.2008.00175.x>
- Goodhart, R. (1943). Wartime feeding of industrial workers. *Annals of the American Academy of Political and Social Science*, 225, 116–121. <http://dx.doi.org/10.1177/000271624322500141>
- Goodhart, R. S., & Pett, L. B. (1945). The war-time nutrition programs for workers in the United States and Canada. *The Milbank Memorial Fund Quarterly*, 23(2), 161–179. <http://dx.doi.org/10.2307/3348248>
- Goodman, D. (2003). The quality “turn” and alternative food practices: Reflections and agenda. *Journal of Rural Studies*, 19(1), 1–7. [http://dx.doi.org/10.1016/S0743-0167\(02\)00043-8](http://dx.doi.org/10.1016/S0743-0167(02)00043-8)
- Grant, T. (2001a). *Compass Group. International Directory of Company Histories*. (Vol. 23, pp. 121–124). Detroit, Michigan: St. James Press.
- Grant, T. (2001b). Sodexho Alliance. *International Directory of Company Histories*. (Vol. 29, p. 442–444). Detroit, Michigan: St. James Press.
- Grant, T. (Ed.). (2001c). ARAMARK Corporation. *International Directory of Company Histories*. (Vol. 41, pp. 21–24). Detroit, Michigan: St. James Press.
- Hobsbawm, E. J. (1994). *Age of extremes: The short twentieth century, 1914–1991*. London: Joseph.
- Hospital Employees’ Union. (2007, October 11). Hospital contractor’s plan to hire overseas workers points to Bill 29 privatization failure (News release). Retrieved from <http://www.heu.org/news-media/news-releases/hospital-contractors-plan-hire-overseas-workers-points-bill-29-privatization>
- Industrial Feeding Held Vital in War: A Major Weapon. (1944, May 27). *New York Times*, p.18..
- Izumi, B. T., Wright, D. W., & Hamm, M. W. (2010). Farm to school programs: Exploring the role of regionally-based food distributors in alternative agrifood networks. *Agriculture and Human Values*, 27(3), 335–350. <http://dx.doi.org/10.1007/s10460-009-9221-x>
- King, P. (2000). U.S. contractors eye Canadian industry’s vast self-op sector. *Nation's Restaurant News*, 34(3), 45–47.

- Lawn, J. (2007, February). Taking measure of the market. *Foodservice Management*, 43–62.
- Local Food Plus. (n.d.). About LFP | Local Food Plus. Retrieved January 15, 2012, from <http://www.localfoodplus.ca/about>
- Mériot, S.-A. (2006). *Nostalgic cooks: Another French paradox*. Leiden and Boston: Brill.
- Mikkelsen, B. E., Kristensen, N. H., & Nielsen, T. (2005). Innovation processes in large-scale public foodservice—Case findings from the implementation of organic foods in a Danish county. *Journal of Foodservice Business Research*, 8(2), 87–105. http://dx.doi.org/10.1300/J369v08n02_07
- Morgan, K., & Sonnino, R. (2007). Empowering consumers: The creative procurement of school meals in Italy and the UK. *International Journal of Consumer Studies*, 31(1), 19–25. <http://dx.doi.org/10.1111/j.1470-6431.2006.00552.x>
- Peck, J., & Tickell, A. (2002). Neoliberalizing space. *Antipode*, 34(3), 380–404. <http://dx.doi.org/10.1111/1467-8330.00247>
- Polanyi, K. (2001 [1944]). *The great transformation: The political and economic origins of our time*. Boston, Massachusetts: Beacon Press.
- Pollan, M. (2006). *The omnivore's dilemma: A natural history of four meals*. New York: Penguin Press.
- Pollan, M. (2010, June 10). The food movement, rising. *New York Review of Books*. Retrieved from <http://www.nybooks.com/articles/archives/2010/jun/10/food-movement-rising>
- Porter, D. (2006). Self-op vs. contract: What's right for your campus? *Food Management*, 41(11), 32–34.
- Raynolds, L. T. (2000). Re-embedding global agriculture: The international organic and fair trade movements. *Agriculture and Human Values*, 17(3), 297–309. <http://dx.doi.org/10.1023/A:1007608805843>
- Reconverted Industry to Continue Wartime In-Plant Feeding System. (1945, August 12). *The New York Times*, p. S5.
- Renting, H., Marsden, T. K., & Banks, J. (2003). Understanding alternative food networks: Exploring the role of short food supply chains in rural development. *Environment and Planning A*, 35(3), 393–411. <http://dx.doi.org/10.1068/a3510>
- Ritzer, G. (1998). *The McDonaldisation thesis: Explorations and extensions*. London: SAGE Publications.
- Roosevelt Plans to Cut Living Cost; Wage “Lid” Stands: Price Slash Is Aim President Will Ask Funds from Congress for His Five-Point Program. (1943, July 24). *The New York Times*, p. 1.
- Schmidt, S. (2008, October 10). Maple Leaf CEO complains of inspection double standards. *Canada.com*. Retrieved from <http://www.canada.com/topics/news/national/story.html?id=4c6f2019-2f68-4d7b-bce0-be71aca8dc84>
- Schurman, R. (2004). Fighting “Frankenfoods”: Industry opportunity structures and the efficacy of the anti-biotech movement in Western Europe. *Social Problems*, 51(2), 243–268. <http://dx.doi.org/10.1525/sp.2004.51.2.243>
- Schurman, R., & Munro, W. (2009). Targeting capital: A cultural economy approach to understanding the efficacy of two anti-genetic engineering movements. *American Journal of Sociology*, 115(1), 155–202. <http://dx.doi.org/10.1086/597795>
- Scrinis, G. (2008). On the ideology of nutritionism. *Gastronomica*, 8(1), 39–48. <http://dx.doi.org/10.1525/gfc.2008.8.1.39>
- Seyfang, G. (2006). Ecological citizenship and sustainable consumption: Examining local organic food networks. *Journal of Rural Studies*, 22(4), 383–395. <http://dx.doi.org/10.1016/j.jrurstud.2006.01.003>
- Smith, A., & MacKinnon, J. B. (2007). *The 100-mile diet: A year of local eating*. Toronto: Random House Canada.
- Sonnino, R. (2007). Embeddedness in action: Saffron and the making of the local in southern Tuscany. *Agriculture and Human Values*, 24(1), 61–74. <http://dx.doi.org/10.1007/s10460-006-9036-y>
- Stinson, J., Pollak, N., & Cohen, M. (2005). *The pains of privatization: How contracting out hurts health support workers, their families, and health care*. Canadian Centre for Policy Alternatives, British Columbia Office.
- Sustain UK. (2009). *Good food on the public plate: What we have done and what we have learned*. London, UK: Sustain: The alliance for better food and farming. Retrieved from <http://www.sustainweb.org/publications/?id=175>

- Sustain UK. (2012). Good Food on the Public Plate. Retrieved January 15, 2012, from <http://www.sustainweb.org/goodfoodpublicplate>
- Taylor, D. A. (2008). Does one size fit all?: Small farms and U.S. meat regulations. *Environmental Health Perspectives*, 116(12), A529–A531. <http://dx.doi.org/10.1289/ehp.116-a528>
- Tschang, C.-C. (2008, April 9). Aramark preps for Olympic feeding frenzy. *BusinessWeek Online*, 21.
- U.S. Buying Meat for War Plant Use: Shortage Forces Agriculture Bureau to Supply Lamb to Coast Cafeterias. (1945, July 24). *The New York Times*, p. 24.
- Vogt, R., & Kaiser, L. (2008). *Still a time to act: A review of institutional marketing of regionally-grown food. Agriculture and Human Values*, 25(2), 241–255. <http://dx.doi.org/10.1007/s10460-007-9106-9>
- Winson, A. (1992). *The intimate commodity: Food and the development of the agro-industrial complex in Canada*. Toronto: Garamond Press.
- Yigit, V., Tengilimoglu, D., Kisa, A., & Younis, M. Z. (2007). Outsourcing and its implications for hospital organizations in Turkey. *Journal of Health Care Finance*, 33(4), 86–92.

The Food Policy Audit: A new tool for community food system planning

Jennifer O'Brien,^{a,*} Urban and Environmental Planning, University of Virginia

Tanya Denckla Cobb,^b Institute for Environmental Negotiation and Department of Urban and Environmental Planning, University of Virginia

Submitted 7 June 2011 / Revised 19 January 2012 and 20 March 2012 / Accepted 20 March 2012 / Published online 14 June 2012

Citation: O'Brien, J., & Denckla Cobb, T. (2012). The Food Policy Audit: A new tool for community food system planning. *Journal of Agriculture, Food Systems, and Community Development*, 2(3), 177–191. <http://dx.doi.org/10.5304/jafscd.2012.023.002>

Copyright © 2012 by New Leaf Associates, Inc.

Abstract

The Food Policy Audit was developed in response to the growing need for tools to assist in the food planning process and was piloted in a graduate urban and environmental planning course at the University of Virginia. The audit proceeded in two phases: phase one consisted of 113 yes-or-no research questions regarding the existence of food-based policy relating to public health, economic development, environmental impacts, social equity, and land conservation; phase two confirmed the validity of phase one's results through a series of

stakeholder meetings. The meetings also provided insight into the success of policies and initiatives currently in place, community attitudes and perceptions, and community priorities for moving forward. The Food Policy Audit process proved educationally beneficial to both students and community members, and provided a policy-based tool for communities interested in shaping a more sustainable and resilient food system.

Keywords

audit, food policy, food system curriculum, food system planning, local food, local food policy, planning tool, sustainable food system, planning policy

^a Jennifer O'Brien is an Urban and Environmental Planning graduate student at the University of Virginia.

^{*} *Corresponding author:* Jennifer O'Brien, 4998 Break Heart Road, Crozet, VA 22932 USA; +1-313-303-6244; jen.obrien3@gmail.com

Tanya Denckla Cobb is Associate Director at the Institute for Environmental Negotiation, and lecturer with the Department of Urban and Environmental Planning at the University of Virginia.

Tanya Denckla Cobb, Institute for Environmental Negotiation, 2015 Ivy Road, P.O. Box 400179, Charlottesville, VA 22904 USA; +1-434-924-1855; td6n@virginia.edu

The Food Policy Audit: Development and Trial Run

To enhance the array of twenty-first century community planning tools, such as GIS mapping, modeling, and data analysis, University of Virginia faculty developed a Food Policy Audit in the fall of 2009, and conducted a pilot audit of a five-county region of central Virginia with a graduate planning class in the spring of 2010. The audit serves several functions: raising community awareness and under-

standing of how food system issues interplay with a host of other community issues; beginning a community conversation about its food system priorities; and providing a baseline inventory and gap analysis of formal and informal policies affecting the community food system.

Emerging Need for New Planning Tools

Whatever the dominant issue of the day, food is inherently linked to public, environmental, and economic health, and plays an important role in a community's quality of life. Production and distribution of edible goods was a primary concern of early U.S. urban planners such as Ebenezer Howard, Lewis Mumford, and Patrick Geddes. As early as 1890, each of these men advocated for comprehensive regional planning that included provisions for the production, transportation, distribution, and consumption of food. However, as a result of industrialization, rapid development of transportation modes and networks, and the proliferation of urban sprawl, the twentieth century saw food fall off the modern urban planning agenda. Rather than playing a fundamental role in a community vision, food and agricultural issues became an afterthought to transportation, zoning, housing, and land conservation matters.

While food took a backseat in the world of planning, it persisted as a subject of national concern — be it in an economic, social, environmental or health context. During the second half of the twentieth century, the consequences of contemporary methods of food production, distribution, and consumption began to emerge on the national agenda through the lenses of environmental and social justice. In the 1960s, Rachel Carson's *Silent Spring* (1962) exposed the environmental impacts of food production, launching the environmental movement, while a decade later Frances Moore Lappé's *Diet for a Small Planet* (1971) exposed the problem of global hunger as one of distribution rather than production. The oil embargo of 1973 brought to public attention the danger of depending on long-distance transportation systems to supply a basic need such as food (Pothukuchi & Kaufman, 1999). The 1980s featured the first Farm Aid concert, which raised awareness of the hardship that small farmers were

experiencing as industrial agriculture replaced traditional systems. Robert Rodale nurtured the organic movement from the 1950s through the 1980s through publications from the Rodale Press and on-farm research by the Rodale Institute. Organic products finally entered the mainstream American market during the 1990s (Fromartz, 2006), with the creation and success of organic retailers such as Whole Foods and Wild Oats.

Today, the widely publicized obesity epidemic and increasing rates of diabetes have moved the twenty-first century food spotlight onto health, specifically in the areas of access to and availability of fresh, nutritious food. The general public has embraced books such as Michael Pollen's *Omnivore's Dilemma* (2006) and movies such as *Food, Inc.* (2008) that highlight the unintended and detrimental environmental, social, and health-related consequences of our current food system. First lady Michelle Obama has become a fervent advocate for a complete overhaul of childhood nutrition programs throughout the country. The alarmingly high rate of Americans experiencing obesity and nutrition-related medical problems has forced food and nutrition into the national spotlight. The statistics are compelling: the U.S. Centers for Disease Control and Prevention estimates that one in every three children in the United States is either overweight or obese, with an even higher rate among African Americans, Hispanics, and Native Americans. Of Americans ages 17 to 25, 27 percent are too overweight to join the military (Christeson, Taggart, & Messner-Zidell, 2010), and nearly \$120 billion is spent every year to treat obesity-related conditions (Wolf & Colditz, 1998). In 1999 urban planning professors Kameshwari Pothukuchi and Jerome Kaufman asked whether it would take a crisis to bring food systems to the forefront of the national urban policy agenda (Pothukuchi, 1999), and it appears that the obesity epidemic is providing that platform. As the relationship between public health and the food environment has become more widely understood, urban planners and planning institutions have slowly begun reintroducing food security issues into their agendas and curricula. In recognition of food as a subject for serious planning consideration, the American Planning

Association released a policy guide on community and regional food planning in 2007 (APA, 2007). This marked the official re-introduction of the food system into the planner's purview and reiterated the fundamental role it plays in a sustainable and resilient community.

The Role of the Food System Assessment

Several communities have taken innovative steps to improve their food systems. The creation of food security focus groups, community food forums and food policy councils began as early as the 1980s. There are currently over 100 documented food policy councils in the nation, some appointed by city councils or governors, and some regionally self-formed as nongovernmental nonprofits. All are constituted with representation from the broad spectrum of stakeholder interests in food policy, such as agriculture, farmland preservation, economic development, environmental protection, education, and community health and nutrition. These councils offer a way for very different interest groups to come together to discover, identify and advocate for a common cause. Groups which might not otherwise have occasion to interact — such as kindergarten through high school educators and farmland preservationists, or public health advocates and farmers — are educating each other about complex constituent programs and needs relating to food production, distribution and consumption. One of the first steps taken by these grassroots groups is an assessment that documents and analyzes the community's food assets, gaps, opportunities and challenges (Pothukuchi, 1999). In some cases, the process is reversed, with a food system assessment prompting the creation of a food policy council.

Regardless of the method of inception, food assessments have proven to be powerful tools for identifying disparities in community resources and raising community awareness of food access issues. By prompting citizens to examine their food environment, an assessment opens a public dialog that is grounded in the realities of existing community resources. Assessments typically address practical aspects of the community food system — production, distribution, and consumption — in addition to community resilience and welfare. Such

issues require knowledge of the community's emergency food system and safety net, the affordability and availability of nutritious food, and the physical ease of accessing food through affordable modes of transportation.

Food system assessments vary in scope and complexity. In a 1994 study of six food policy councils, Kenneth Dahlberg, professor of political science at Western Michigan University, wrote that a comprehensive food policy should include “production issues (farmland preservation, farmers' markets, household and community gardens), to processing issues (local vs. external), to distribution issues (transportation, warehousing) to access issues (inner-city grocery stores, co-ops, school breakfasts and lunches, food stamps, the WIC program, etc.), to use issues (food safety and handling, restaurants, street vendors), to food recycling (gleaning, food banks, food pantries and soup kitchens) to waste stream issues (composting, garbage fed to pigs, etc.)” (Dahlberg, 1994, p. 3). Another step forward in developing an appropriate scope for a food system assessment came in 2002 when the USDA created a Community Food Security Assessment Toolkit, building on the 1999 Community Food Security Assessment Conference sponsored by the Economic Research Service (ERS). This toolkit compiled the experiences of food policy councils throughout the country in an effort to create a standardized, comprehensive assessment tool. In addition to outlining how to go about gathering this data, the USDA advocated that a food system assessment should include six basic components: a profile of community socioeconomic and demographic characteristics; a profile of community food resources; assessments of household food insecurity; food resource accessibility and affordability; and community food production (Cohen, 2002).

Food assessments have been successful in raising awareness of food access and quality issues by involving a variety of stakeholders in an asset-based, collaborative approach. Assessments tap into a community's experience and culture by engaging the public in all phases of the process: planning stages, research completion, as well as identifying and achieving goals. According to the Community Food Security Coalition's report,

What's Cooking in Your Food System: A Guide to Community Food Assessment, “emphasis on building local capacity and social capital, rather than simply gathering data about community needs or problems also enhances its sustainability” (Pothukuchi, Joseph, Burton, & Fisher, 2002, p. 13). As a result of this emphasis on building community capacity, food system assessments can be a force for community change by identifying existing community resources and future needs. While any positive change in a community’s system of food production, distribution, and access might be considered a victory, the ultimate goal for planners is to facilitate a supportive community *framework* for ongoing growth and development. One key to building this framework is to ensure that a community’s laws, policies, and zoning ordinances enable, rather than stifle, this growth and development.

In addition to federal and state laws and policies, local regulations play a major role in determining where food is grown, sold, and consumed. The web of formal and informal policies affecting these issues can be difficult to uncover and examine. This is the point where urban planning techniques can provide significant benefits to communities carrying out food system assessments. Through a planning lens, a food system assessment highlights the effects of the built environment, as well as the policies that create this environment. A study of nine food system assessments (four of which were led by professionals with planning backgrounds) led Pothukuchi to conclude that planner-led food assessments were more inclined to incorporate options for local government intervention, display a more thorough understanding of community concerns, utilize spatial mapping as an analysis tool, and distribute findings to a larger audience (Pothukuchi, 2004). Incorporating planning-specific skills into food assessments can create more comprehensive, compelling reports—precisely the type of information needed to facilitate change at the government level.

More recently, Freedgood, Pierce-Quinonez, and Meter reviewed the “growing body of assessment tools” and created a useful framework that characterizes the different methodologies of these assessment tools (2011, p. 83). They identify eight distinct assessments: foodshed, community

food system, community food security, community food asset, food desert, land inventory, local food economy, and local food industry. Each approach is characterized by its purpose, methodology, and limitations, and specific examples are provided. Local policy clearly plays a role in each of these assessments, providing the backdrop for the conditions that are being assessed, from land use to food security. Each assessment approach implicitly or explicitly assumes that policies may either support or serve as a barrier for an equitable and sustainable local food system. Some take an asset-based approach, while others assess community needs or specific impacts, such as access, hunger, or public health. Some employ mapping, inventories, and community engagement. While Freedgood, Pierce-Quinonez, and Meter are careful to note that the food planning field is rapidly evolving, and therefore their review may not be comprehensive, they have created a valuable way of differentiating and categorizing the emerging tools. Yet it appears that not one of these tools or approaches helps a community to more effectively use its assets, address needs, and reduce undesired impacts by laying out a full array of potentially desirable policies for the community to examine and prioritize. This gap in planning tools is what the Food Policy Audit is designed to fill.

Creating an Assessment Tool Specifically for Policy Change

Tim Beatley and Tanya Denckla Cobb were co-teaching a food systems planning course in the Department of Urban and Environmental Planning at the University of Virginia, in Charlottesville, when they set out to confront the need for a more targeted food assessment. The spring 2010 class was the second in a series of three Community Food System courses, with the first focusing on assessing food environments, the second on policy, and the third on global/local connections. In previous semesters, students had conducted a variety of studies, including a preliminary food assessment of the five-county Thomas Jefferson Planning region; evaluations of specific players in the local food system (restaurants, farms, institutions, a food bank) and the policies influencing their practices; an analysis of global sources and

inputs into different parts of the local food system; and an evaluation of the ability of the five-county region to feed itself based on farm production and available processing facilities.

The policy-focused portion of the course cycle came at an opportune time, just as Albemarle County (of which Charlottesville is the county seat) was beginning to grapple with policy related to roadside farm stands. Grassroots efforts to improve local food access throughout the region had been accelerating in recent years, and had reached the tipping point of policy creation. A new nonprofit, the Local Food Hub, was providing distribution services for local farmers to aggregate and sell their produce to larger institutions. The region's land conservation nonprofit, the Piedmont Environmental Council, had spearheaded Virginia's first "Buy Fresh, Buy Local" (BFBL) guide, and then had been named the state's BFBL lead agency. A citizen-led group, Market Central, was beginning to seek a permanent year-round shelter for the Charlottesville farmers' market. A regional nonprofit, the Jefferson Area Board for Aging (JABA), had set — and quickly met — an ambitious goal of improving the thousands of meals it serves to seniors each month by purchasing at least 20 percent of the ingredients from local farmers. University students were requesting more locally sourced foods in cafeterias and were gaining a favorable audience with administrators of the campus food service provider. One campus café had been reconfigured specifically to serve locally sourced foods.

Throughout Charlottesville's five-county region, organizations were attempting to increase awareness of local food issues. Without a comprehensive analysis it was unclear how much progress was being made, or what might be needed to enable further progress. In an effort to gauge the region's progress and better understand the region's food environment, the team made up of Denckla Cobb, Beatley, and teaching assistant Jessica Ray decided to create a formal Food Policy Audit (FPA). The FPA would build upon the strengths of community food assessments and guide users through the complicated process of uncovering local, regional and federal policies relevant to a local food system. The hope was to

create a tool that would be broadly useful to communities throughout the nation. The team sought to construct a tool that was accessible for use by college students, community nonprofits, and citizens leaders, but also sufficiently detailed to provide meaningful guidance to professional planners and community decision-makers.

To begin, the team decided to make the FPA as objective as possible, modeling it after an energy audit that consists of a series of simple "yes-or-no" questions. The team also reviewed the literature for related tools and audits, in hope of building on the work of others. The first draft of the FPA consisted of 101 questions regarding the existence and content of policies influencing food production, sale, and consumption. Questions were culled from a variety of resources and divided into five topical sections. Many questions were influenced by the goals and initiatives of the Prevention Institute, a national nonprofit that promotes policies, organizational practices, and collaborative efforts intended to improve health and quality of life. Other resources included Public Health Law and Policy, the Community Food Security Coalition, the Virginia Farm to School Program, the North American Food Policy Council, the Virginia Department of Agriculture and Consumer Services, and the American Farmland Trust.

Questions were collected, edited, and refined. The list needed to be presented in a manner that planners would find user-friendly during the audit process, as well as valuable when reporting the findings to the community. Rather than organizing the questions according to components of a food system (i.e., food production, distribution, and access), the team decided to frame the questions according to five key concerns that community decision-makers face every day. The key concerns are public health, economic development, environmental impacts, social equity, and land conservation (including access to land for food production). Throughout the five categories, the audit investigates the presence of policies that reduce and prevent community obesity and chronic illness, provide transportation options to food markets and stores, or reduce community exposure to pesticides and chemicals in food. Some audit questions try to discern a policy through the

presence of an amenity, such as, “*Do safe biking and walking paths exist between neighborhoods and food stores and markets?*” Other questions discern a policy more directly, such as “*Does the locality have a policy to support land conservation for food production?*” While the draft audit seemed long at 101 questions, the team agreed that during this initial phase of development, the audit should err on the side of too many rather than too few questions.

Framing the audit questions in the simple “yes” or “no” format was a key decision. Beatley made a compelling argument that this would objectify the results, reducing room for error and minimizing argument. Either a policy exists or it does not. The audit method requires the auditor to document and cite the location of an existing policy, while minimizing the opportunity for the auditor to inject personal opinion or bias on how well the community is enforcing the policies.

On the other hand, the team also recognized that simply documenting the presence of community policies would not produce a useful audit. While a policy might exist on the books, such as a goal to support a county’s rural farm character, aspects of the zoning code may be inadvertently preventing the policy from being implemented. Conversely, while a policy to increase access to affordable, healthy food might not exist in the books, the community could be making great strides in this area by providing Electronic Benefit Transfer (EBT) access at farmers’ markets. EBT is an electronic system that allows participants to transfer funds from the federal Supplemental Nutrition Assistance Program (SNAP) to a retailer. The team wanted to design an audit that would be more than a simple inventory of a community’s existing legal infrastructure. In a report separate from the initial, objective research, the audit would also reflect the community’s informal food policy structure and the reality of what was or was not happening on the ground.

Ultimately, the team designed the Food Policy Audit to have two distinct implementation phases. Completing the audit questions in phase one would provide a preliminary picture of the community through the information provided in laws, plans, and documented regulations. A second phase of eliciting community knowledge would provide the

additional information necessary to round out and perhaps even radically change the picture.

Engaging the Community

Before the FPA could be tested, a key step in developing this tool was to engage the community in reviewing and contributing to the draft audit questions. Early engagement of key stakeholders would provide important feedback to help craft a tool that would be truly useful. Over the space of several months, Denckla Cobb and Ray met with community stakeholders to share the draft audit and gather suggestions and feedback on questions such as *Was the audit even a good idea? If answered, would the audit questions provide information useful to decision-makers? Were any questions irrelevant, duplicative, or could some questions be phrased in a better way? Were there additional questions that should be included in the audit?* Regional organizations that were involved in various aspects of the food system were consulted: the community’s Obesity Task Force, the regional Planning District Commission, the UVA Health System Nutrition Services, a school system nutritionist, a legal aid advocate for migrant workers, a nonprofit agency serving a low-income neighborhood that was managing the area’s first urban farm, and the region’s nonprofit agency serving seniors. During these conversations, Ray and Denckla Cobb not only received numerous suggestions for wordsmithing, but also learned of additional substantive community concerns. These issues were transformed into additional audit questions, and the audit grew to include 113 questions.

Preparing To Test the Audit on a Five-County Region

Beatley and Denckla Cobb’s 2010 Food System Planning course, offered in the graduate urban and environmental planning program, undertook a semester-long project to pilot the FPA in the city of Charlottesville and the surrounding five-county region. The audit proceeded in two phases. In phase one, students were divided into teams of three, with each team assigned to one of six localities (the city and five counties). Within the team, students took on responsibility for different substantive portions of the audit. Students first gathered all the relevant planning and policy

documents for their assigned locality, including comprehensive plans, strategic plans, school wellness plans, zoning ordinances, regional and state guidelines, and school district strategic plans. Upon reviewing each document, students answered relevant audit questions with a “yes” or “no,” and provided excerpts and citations of pertinent information from the document.

In phase two, students met with various members of the community to share their findings and obtain feedback and insight. These community members had already been approached by the team, briefed on the project, and agreed to meet with students. Through the community conversations, students were able to “groundtruth” their audit, learning whether the locality’s policy infrastructure reflected what was actually happening. Students were required to meet with at least five different organizations or people, two of whom had to be from local government. It was important for students to interview people working in different sectors in order to obtain diverse perspectives on the community’s food system, factors helping or hindering its progress, and community needs and priorities.

To prepare students for phase two, the faculty team conducted training in community engagement techniques, and students spent time role-playing possible conversations and situations. Students were encouraged to go into their community meetings with an attitude of openness and inquiry, be prepared for surprises, and learn from the stakeholders. In this same vein, students were instructed not to go into their community meetings with any assumptions about specific stakeholders, policies, or activities on the ground, regardless of their considerable research on the locality. This training was an important part of the process that benefited both the experience of the community participants and quality of the audit. It was imperative that the meetings in phase two did not become a forum for students to attempt to solve problems, but instead to serve to confirm the validity of the yes-or-no portion of the audit, enrich student understanding of the informal policy infrastructure, and elicit community members’ food systems priorities.

Conducting and Evaluating the Test Run

The completed audits highlighted some general trends throughout the region, as well as county-specific issues. The city of Charlottesville and Albemarle County had more advanced food system policies and initiatives than the more rural counties of Fluvanna, Greene, Nelson, and Louisa. Presumably, this was because of increased population, budgets, and local government capacity. The more rural counties tended to have less *documented* food-related policy, yet face-to-face interviews revealed numerous grassroots initiatives, such as farmers’ markets, gleanings, and local buying programs. These rural counties also revealed a common interest in economic development through increased production and processing facilities, as well as food- and wine-based tourism.

Childhood nutrition was a major concern for all localities, fueled by the National School Lunch Program and state requirements for school wellness plans and councils. School officials in each district mentioned the need for more time and money for local produce purchasing and menu planning. Each district had also participated in Virginia’s Farm to School Week in some capacity, with the help of the Local Food Hub, a nonprofit that provides distribution services for area farmers. The Local Food Hub was a strength identified in many localities, in addition to the work being carried out by the region’s advocacy organization for seniors, JABA. A strong interest in the agricultural heritage of the region and a strong sense of community were also identified as strengths in most localities.

Opportunities identified by community members included connecting the goals of local economic development boards with the work of the Local Food Hub and JABA, and increasing the coordination between existing food security organizations. In every locality, stakeholders indicated that increasing local food purchasing was a priority, particularly within schools. Increasing education on agricultural and nutritional topics were priorities in five out of six localities. In the more rural counties, stakeholders felt that food initiatives were often hampered by broader community development issues, such as a lack of communication infrastructure. A broadband

network is not available in Nelson County, which limits farms' and businesses' access to consumer markets. On the other hand, localities with well developed communication infrastructure had more advanced food-specific priorities. For example, the city of Charlottesville's community priority list included, "*Encourage the Charlottesville-Albemarle Technical Education Center (CATEC) programs to include an agricultural track to support new and beginning farmers,*" and Albemarle County's included, "*Provide a land-use taxation break for farms under 5 acres [2 ha].*"

In localities with more active food system initiatives, the step of identifying stakeholder priorities turned out to be particularly important. A variety of grassroots efforts had already proved successful, so streamlining stakeholder goals into a set of common priorities would allow the various efforts to move forward together, rather than in isolation.

Promising Findings

The audit's question-based format fostered an interesting give-and-take process between community members and students. Participants were often surprised by the range of issues that were included under the umbrella of a community food system. Students found that audit questions prompted community members to think about a program or policy in a new way, indicating that they hadn't previously considered that program or policy in the context of their community's food system. For example, some people hadn't thought about the relevance of safe walking and biking paths in the context of enabling safe access to food, or the importance of adjusting a local transportation plan to enable easier access to groceries via public transit. For some, consideration of migrant farm labor was an important addition to their conceptualization of the local food system, triggered by the audit questions regarding adequate training in pesticide management and provision of protective gear, as well as access to fresh, healthy foods for migrant farm laborers. Through the community engagement phase, conversations with community participants revealed that a major benefit of the audit was simply raising community awareness of the

complexity and importance of the local food environment.

Additionally, students specifically asked participants about their challenges and ideas for improving their local food system. These questions elicited new insights and ideas, and even created motivation for later action.

One such instance arose from the questions regarding migrant farm workers during the Greene County audit. A social equity audit question asked, "*Does the locality provide or ensure that adequate protection against pesticides is provided to farm workers?*" Some participants responded that their community did not have any migrant laborers. This response provided students with insight into the community's understanding of local farming practices. While the county does not experience a large influx of migrant workers, the complete lack of awareness of their presence signaled a disconnect between county residents' perceptions and the reality of the labor force. The presence of migrant farm laborers had been confirmed during an earlier meeting with Virginia Cooperative Extension staff, and the students shared these findings. This new information prompted the community participants to devise ways in which existing food assistance programs could benefit local migrant laborers, and ways in which local policies were currently benefiting or complicating the food environment for this particular population. Through this exchange, stakeholders and students realized the importance of gaining a thorough understanding of existing conditions prior to selecting a policy approach. Without an accurate perception or awareness of the problems facing a locality, it would be difficult, if not impossible, to develop appropriate solutions. In this instance, the audit was an objective tool that raised community awareness about a previously unidentified county issue, educated the community about its own food system, and provided the community with a starting point for exploring appropriate solutions.

Both phases of the audit — research and community engagement — proved essential. The research phase laid the groundwork for community engagement that was both informed and targeted. For example, the students audits did confirm that all schools had developed a comprehensive well-

ness policy, as mandated by the Child Nutrition and WIC Reauthorization Act of 2004, and that all included nutrition guidelines, vending machine regulations, and physical education standards. But student research also revealed that some counties had gone further than required by following the Virginia Action for Healthy Kids guidelines, which specify that no sodas, no snacks over 300 calories, and only all whole-grain cookies and snacks be made available to students. It also revealed that Louisa County was exceeding USDA recommendations by requiring that bread items on the breakfast and lunch menus contain at least 51 percent whole grains, that Greene County was offering one fresh vegetable option at lunch (in addition to a cooked vegetable), and that three Albemarle County elementary schools had individual (not county-supported) initiatives to establish school gardens.

Armed with this baseline information, students could then focus their community interviews more on exploring challenges and opportunities, allowing stakeholders sufficient time to share innovative ideas. Charlottesville stakeholders, for example, suggested the establishment of a nutrition advisory board run by students as a unique way to generate student-led discussion, recommendations, and action surrounding healthy eating in schools. Green County stakeholders suggested mandatory physical education classes for all grade levels, with gardening as an option, as gardening could also foster interest in agriculture among youth. They also suggested piggybacking on their county's popular annual arts festival to hold a concurrent health festival.

If a policy or program did not exist in the locality, students would record a "no" in the audit; however, during the community engagement portion of the audit, community members often had comments or questions about the subject matter of these audit questions. They might confirm the absence of a formal local policy or program, but inform the students of other kinds of community activities that were tackling the issue from a different angle.

For example, the Fluvanna County audit did not find formal county policies supporting food justice (see audit questions 70–105), but through

community engagement the students learned that the county had developed an effective system to provide access to food for the elderly, disabled, and impoverished. In Nelson County, the audit did not find a formal policy addressing community health, and community engagement revealed that some local food traditions pose a major challenge. A heavy reliance on high-fat, high-cholesterol ingredients and cooking methods has led to significant county health challenges with obesity, diabetes, and high cholesterol affecting family members of all ages. The audit also indicated that introduction of new foods and cooking techniques to support personal health would be difficult, but could be effective if done through the schools in the form of family education workshops on healthy cooking and gardening. It is unlikely that Nelson County's challenge of food heritage, and the nuanced strategy for addressing it, could have been identified without the audit's community engagement phase.

The audit process of asking community stakeholders about their challenges and opportunities proved to be a powerful phase of the Food Policy Audit. Without this phase, the audit remains a simple research tool for collecting data. With this phase, the audit becomes a tool that enables deeper understanding of what is or isn't working in the local food system, and simple steps that might be taken to advance the local food system. In short, the community engagement phase transforms the audit into a tool that can motivate and empower people to effect change.

In Louisa County, it was the community engagement phase that caused community members to have a key insight: by simply expanding county van transportation for seniors and people with disabilities to the weekend, when the local farmers' markets are held, they would increase access among these populations to fresh, healthy food. Similarly, the county looked good in the research phase of the audit because of a comprehensive plan that suggested improving biking and pedestrian paths, especially "around schools and shopping centers." It was the community engagement phase that revealed that walking or biking to a grocery store is not feasible in most of rural Louisa, and that some sort of public

transportation to groceries would be more helpful for most Louisa residents.

The final stage of the audit process called for distributing the student audit reports to all community members and government officials who had participated in the process. In addition, each student group presented their findings in a public forum. These presentations served to build understanding about community food systems in general, while also offering a “primer” on the current policies and priorities in each of the six localities.

Formally presenting the findings is another way that the audit process can be an important tool for change. In Nelson County, community participants were so motivated by the audit that they formed a task force to begin to implement the audit’s findings and community recommendations. Following the formal presentation of the audit, one community stakeholder, an owner of a farm in Nelson County, sent the student audit report to fellow community members who had not been involved in the audit process. A number of these people decided they wanted to advance their community’s priorities, as identified through the audit, which eventually led them to create the Nelson County Sustainable Food System Council. This council includes multistakeholder representation of seniors, school food services, food pantry (safety net), and elected board of supervisors. The council has since had multiple meetings and kicked off spring 2011 with some successful initiatives. As local farmer Gary Scott explained, “Our initial effort was to participate in the Farm to Schools Week; we had display materials and provided local food products each day of that week. I provided 85 pounds of broccoli and 33 pounds of cut lettuce. We got some good press and exposure including TV coverage.” It was the audit process that provided the community with needed background data and also elicited appropriate and attainable goals from the community, thereby inspiring — and empowering — community members to improve their local food system.

Conclusions

As food systems gain respect as an important focus for twenty-first century community planners, the

tools used in the food planning process should evolve to best utilize the planner’s skill set. To date, community food system assessments have served as the planner’s main method for gauging a community’s assets, gaps, opportunities, challenges, wants, and needs. The assessment process can be more effective when supplemented with a Food Policy Audit that identifies strengths and gaps in existing public health, economic development, environmental impacts, social equity, and land conservation policies. This model, developed and tested by the University of Virginia, is composed of an objective inventory of policies and initiatives in combination with community engagement to both authenticate the results and provide insight into community strengths, opportunities, and priorities.

Based on feedback from both students and an end-of-semester survey of community participants, the audit project was considered a positive experience by most. Community participants who were active in food system work indicated that the audit was a new and useful tool for analyzing policies and their applications, and resulted in a quick guide to components of an effective food system. Some community members expressed concern that the audit process did not provide more in-depth analysis of why certain policies did or did not exist, as well as analysis of what might be most helpful to the community. It is important to note that the tool itself does not inherently restrict deeper analysis. In the test run, analysis was constrained by a 14-week semester that permitted only limited student community engagement. The authors of the FPA envision that, when used by professional planners or community citizen groups, this tool will initiate broader community engagement, deeper research, and more in-depth analysis.

Overall, the FPA process proved educationally beneficial to both students and community members, and the faculty team concluded that it does provide a comprehensive and useful policy-based tool for communities interested in shaping a more sustainable and resilient food system. Through this pilot project, the team learned that the two phases of the tool are complementary and both are essential. More, the team also learned that the audit design — with community engagement

focusing on identifying challenges, opportunities, and priorities — lays the groundwork for community action. Ideally, the whole process would span 10 months, as outlined in figure 1. The personal engagement of community stakeholders gives them both the information and space to think about their food system in new ways. The specificity of the audit's questions empowers stakeholders to think more strategically, inviting them to envision how their community food system could be improved with very specific policies.

The Food Policy Audit is a logical tool for communities wishing to develop a community food system strategic plan. It inventories all aspects of a community's food system policy and program infrastructure, ground-truths this research through interviews with key community stakeholders, and then identifies key community food system challenges, opportunities, and priorities. With these elements completed, a community would be poised to develop a draft strategic food system plan that could be vetted through a task force, focus groups, and community workshops. The strategic plan is more likely to reflect community values and garner community support because of the audit's

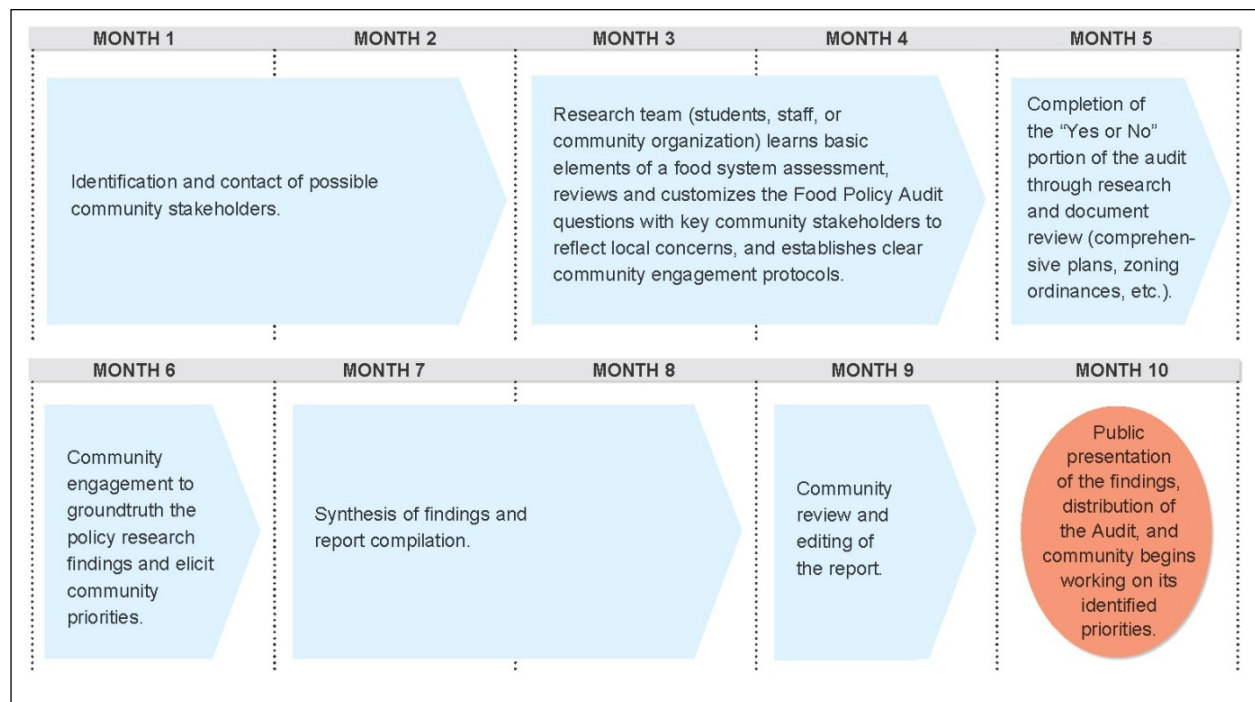
comprehensive research and significant community involvement.

Next Steps

The faculty team has made the tool widely available for others to adapt or adopt for their own community purposes (Ray & Denckla Cobb, 2010). The team posted the tool online and sent notices through a variety of listservs about its availability. It is included here in the appendix. The team has also responded to questions from local planners around the country who have expressed interest in using and/or adapting the tool for their local community. The faculty team sees this tool as a beginning point, not a finished product, and is eager to receive feedback from other communities that use or adapt it for their own purposes. Also, the faculty team envisions using the tool in future food system planning courses to conduct audits of other Virginia communities. As it does so, the team plans to continue perfecting the tool and updating the online template to reflect its latest thinking.


A helpful next step to improve the audit would be to develop a short citizens guide for conducting a Food Policy Audit. This guide should be written

Figure 1. Food Policy Audit Process and Timeline



in a way that it can be used by community planners as well as by citizen leaders and nonprofit organizations that wish to take a lead in advancing their local community food system. The guide would provide step-by-step explanations, including best practices for both the research and community engagement phases. Lastly, in response to feedback received from community participants in our pilot audit, the guide ideally would provide guidance for deeper analysis during the research phase, so that the audit would not only identify what policies do or do not exist, but would also explicate the local history of why the locality's policies are shaped the way they are or, conversely, why the locality has not adopted specific policies. Such a guide would enable a wider distribution and more standardized use of the audit tool. Further, in an age of limited budgets and resources, a citizens guide would empower nonplanners, citizen leaders, and nonprofit organizations interested in their local food system to assist their community by undertaking an independent community Food Policy Audit. The audit may be lengthy, but it is not inherently difficult. Further, the audit could be accomplished by a collaboration among community organizations with differing expertise. For example, a community land trust might be asked to conduct the portion of the audit concerning land conservation, a local health organization the portion concerning public health and schools, and so forth. In this way, the audit would become a communitywide endeavor, building community interest and engagement at multiple levels.

Finally, after the audit is employed in a variety of communities, evaluation of the tool's efficacy would be another important next step. Freedgood, Pierce-Quinonez, and Meter argue that assessment tools "would benefit from evaluation of the extent and efficacy of community engagement, the assessment's ability to unify stakeholders regarding a common agenda, and the impacts of the related food system work on the community defined" (2011, p. 100). For this tool, because of its very specific focus on existing policies and policy opportunities, it would be interesting also to evaluate the tool's efficacy of moving stakeholders beyond identification and prioritization of policy

opportunities to successful initiation of changes in local policies. The tool would also benefit from a comparative evaluation of its efficacy in communities with different policy frameworks and demographics. We envision the Food Policy Audit as a flexible tool to engage the community and build consensus around policy needs and priorities for the food system. Through evaluation and adaptation, we hope that this tool will enable communities to shape and sharpen their policies to more effectively achieve their broader food system goals. 

To access the Food Policy Audit, visit:

<http://www.virginia.edu/ien/foodplanningresources.htm#2010>

For questions about the tool, please contact Tanya Denckla Cobb at tanyadc@virginia.edu or +1-434-924-1855, or Tim Beatley at beatley@virginia.edu or +1-434-924-6457.

Acknowledgments

The authors wish to acknowledge Timothy Beatley, Teresa Heinz Professor for Sustainable Communities at the University of Virginia Department of Urban and Environmental Planning, for his creative contribution to the field by suggesting the need for a Food Policy Audit; and Jessica Ray for her extensive foundational research in developing the first draft of the audit questions, her effective outreach to the community to identify willing participants in the trial run of the FPA, and her assistance to students throughout the semester in addressing and resolving unforeseen challenges.

References

- APA. (2007, May). *Policy guide on community and regional food planning*. Retrieved from <http://www.planning.org/policy/guides/adopted/food.htm>
- Christeson, W., Taggart, A. D., & Messner-Zidell, S. (2010). *Too fat to fight*. Washington, D.C.: Mission: Readiness. http://cdn.missionreadiness.org/MR_Too_Fat_to_Fight-1.pdf
- Cohen, B. (2002). *Community Food Security Assessment Toolkit* (USDA Economic Research Service Report E-FAN No. 02-013). Retrieved from <http://www.ers.usda.gov/publications/efan02013/>

- Dahlberg, K. (1994). *Food Policy Councils: The experience of five cities and one county*. Paper presented at the Joint Meeting of the Agriculture Food and Human Values Society and the Association for the Study of Food and Society, Tucson, Arizona.
- Freedgood, J., Pierce-Quinonez, M., & Meter, K. A. (2011). Emerging assessment tools to inform food system planning. *Journal of Agriculture, Food Systems, and Community Development*, 2(1), 83–104.
<http://dx.doi.org/10.5304/jafscd.2011.021.023>
- Fromartz, S. (2006). *Organic Inc.: Natural foods and how they grew*. Orlando, Florida: Harcourt.
- Pothukuchi, K. (2004). Community food assessment: A first step in planning for community food security. *Journal of Planning Education and Research*, 23(4), 356–377.
<http://dx.doi.org/10.1177/0739456X04264908>
- Pothukuchi, K., Joseph, H., Burton, H., & Fisher, A. (2002). *What's cooking in your food system? A guide to community food assessment*. Community Food Security Coalition. Available at
http://foodsecurity.org/pub/whats_cooking.pdf
- Pothukuchi, K., & Kaufman, J. L. (1999). Placing the food system on the urban agenda: The role of municipal institutions in food systems planning. *Agriculture and Human Values*, 16(2), 213–224.
<http://dx.doi.org/10.1023/A:1007558805953>
- Ray, J., & Denckla Cobb, T. (2010). The Food Policy Audit. Available at the University of Virginia Institute for Environmental Negotiation website:
<http://www.virginia.edu/ien/foodplanningresources.htm>
- Wolf, A., & Colditz, G. (1998). Current estimates of the economic cost of obesity in the United States. *Obesity Research*, 6(2), 97–106.

Appendix. The Food Policy Audit Questions

Food Policy Audit Questions

Auditors (graduate students, citizen volunteers, or planners) read their localities' comprehensive plans, zoning ordinances, regional and state guidelines, school programming and wellness policies, school district strategic plans and any other applicable governing documents, in search of policies or regulations that would effect the local food system. Specifically, they answer the following 113 questions while reviewing the documents and interviewing community members. The questions are divided into five categories: Public Health, Economic Development, Environmental Benefits, Social Equity, and Land Conservation / Access to Land for Food Production.

The results of this community research are recorded in the audit spreadsheet with a simple 'yes' or 'no.' If community planning documents or activities address the issue in question, auditors mark the spreadsheet with a 'yes,' and include document references and detailed explanations in an appendix. If neither planning documents or community activities address the issue, auditors mark the spreadsheet with a 'no.'

1. PUBLIC HEALTH

a. Reduce and Prevent Community Obesity and Chronic Illness

1. Does the locality express a concern or a goal for improving public health?
2. Does the locality mention a goal to reduce obesity and/or chronic illness?
3. Does the locality have an overall wellness plan?
4. Does the locality clearly allow, support, or advocate for Farm to School (or similar) programs - for educational purposes, or for provision of food for school cafeteria?
5. Does the locality have other provisions for school purchasing of local or organic foods?
6. Does the locality clearly have a policy to reduce availability of junk food in schools and public buildings (e.g., vending machines and purchasing options)?
7. Do the schools have a policy or program to educate cafeteria workers on preparation of fresh, local food and/or nutrient-rich food?
8. Is the locality clearly encouraging or supporting the inclusion of food-based lesson plans in schools?
9. Does the locality clearly encourage and/or directly support establishment of school garden programs at all levels of K-12?
10. Is the locality currently employing or considering a "joint use" agreement to open the use of school land for food production (school gardens, community gardens, community urban farm)?
11. Does the locality encourage that chain restaurants provide consumers with calorie information on in-store menus and menu boards?
12. Does the locality have a clear tax or other strategy to discourage consumption of foods and beverages with minimal nutritional value, such as sugar sweetened beverages?

tion of foods and beverages with minimal nutritional value, such as sugar sweetened beverages?

13. Does the locality have educational/promotional programs to discourage the use of Supplemental Nutrition Assistance Program (SNAP) for sodas, high sugar and low nutrient foods?

b. Engage public by increasing awareness of healthy and local food options

14. Does the locality have a goal for increasing awareness of healthy food or lifestyle choices?
15. Has the locality adopted a clear policy defining "local" food?
16. Does the locality have a clear goal that supports the production and distribution of local food?
17. Does the locality publish or support a public guide to local food?
18. Does the locality have a clear policy of encouraging (or giving preference to) event caterers or vendors that will use locally sourced food?
19. Does the locality develop media campaigns, utilizing multiple media channels (print, radio, internet, television, social networking, and other promotional materials) to promote healthy eating?
20. Does the locality support or participate in a Food Policy Council?

c. Flexible Policies and Zoning for creative and adaptive uses

21. Does the code allow for and support protection of open space?
22. Does the locality promote or enable easy accessibility to community gardens, for all neighborhoods and income levels?
23. Are there land protections for farmers' markets?
24. Does the locality promote or enable easy, local access to community

gardens by allowing small pocket parks throughout the locality to be used for, or transformed into community gardens?

25. Does the code allow for temporary and conditional use of abandoned lots for neighborhood gardens and/or urban farms?
26. Does the municipality work with an area community land trust in setting aside land for community? or nonprofit gardens? or gardens where low-income residents can grow produce for sale?
27. Does the zoning code have language that supports residential "farm" animals; chickens, goats, roosters? (look for re-defining domestic animals)
28. Are there funding streams available for food related projects, such as Community Development Building Grants?
29. Are there regulations allowing flexibility for food producers to engage in minimal on-site processing?

d. Promote multi-modal transportation options to food sources

30. Does the locality offer multi-modal transportation in the community?
31. Does the locality have a policy or programs to provide multimodal transportation options in the community to enable transportation of low-income populations to grocery stores? Does it reference or include transportation for migrant farm workers from camps?
32. Does the locality have a program that, alternatively, transports local produce to low-income neighborhoods and migrant farm worker camps? (e.g., trucks, food carts, etc.)
33. Do safe biking and walking paths exist between neighborhoods and food stores and markets?
34. Does the locality have a bus service that connects neighborhoods directly with food stores and markets? Requiring no more than one bus change?

connects low-income neighborhoods directly with food stores and markets (requiring no more than one bus changes) for rural as well as urban areas?

72. Are transportation services available at multiple times of day and evening?

73. Has the locality done any infrastructure, transportation or other studies to identify issues of low-income neighborhoods gaining access to quality food, in rural as well as urban areas?

74. Do safe biking and walking paths exist between low-income neighborhoods and food stores and markets, in rural as well as urban areas?

75. Are farmer's markets geographically accessible by low income neighborhoods, in rural as well as urban areas?

b. Support location of grocers providing healthy local, foods in diverse and underserved locations

76. Does the locality have an expedited development and/or permitting process for groceries that will provide healthy, local foods in underserved locations - in rural as well as urban areas?

77. Does the locality recognize through policy or programs the need for low income, immigrant populations, and migrant farm workers, to have access to grocers that provide local, fresh foods—in rural as well as urban areas?

78. Are tax credits available to developers for opening a grocery store in certain areas?

79. Are there any regulatory incentives, such as relaxed zoning requirements, facilitating new stores in underserved areas?

80. Does the locality offer any predevelopment assistance to developers to expedite the review process?

c. Increase availability of fresh and healthful foods for underserved communities

81. Does the locality support the purchase/ use of Electronic Benefit Transfer (EBT) cards to provide low-income access to farmer's markets?

82. Does the locality support the policy of \$2 or \$3 for every EBT dollar, when the EBT is used at farmer's markets or other market venues for fresh, local food?

83. Do farmer's markets and/or grocery stores accommodate WIC coupons, Senior Nutrition Coupons, or EBT machines?

84. Do farmer's markets enable \$2 or \$3 healthy food credit for every EBT dollar?

85. Are markets and stores accessible at multiple times and days to accommodate varying work schedules?

86. Does the locality support, or are there programs for mobile farms stands and mobile food carts?

87. Do local faith, nonprofit organizations, and educational institutions (public and private) have policies to buy local food for events when available?

d. Support an effective emergency food infrastructure

88. Does the locality have a policy that its citizens have a "right to food security." (cf. Belo Horizonte, Brazil)

89. Does the locality support the provision of a central directory of all emergency food providers?

90. Does the locality have a system for directing / referring people in need of food to the places that can help?

91. Does the locality support coordination and cooperation among emergency food providers?

92. Does the locality support a method, structure or storage facility for donations of fresh foods to emergency food providers?

e. Support equitable working conditions for farm labor

93. Does the locality support a living wage policy for all those who work, including migrant farm labor?

94. Does the locality support access to fresh, healthful food by the farm laborers who are helping to produce the food?

95. Does the locality provide or ensure that training for farm workers is provided in a comfortable training environment, and that the training is adequate and in their native language, and that someone is available to answer farm worker questions in their own language?

96. Does the locality provide or ensure that adequate protection against pesticides is provided to farm workers?

97. Does the locality have a program or support a program to encourage and enable transitional farm labor to become engaged in, or participate in, or become integrated into community events - such as through volunteering for county fairs, agricultural events?

98. Does the locality have a clear contact for migrant farm workers to contact, to participate in any aspect of the community?

99. Does the locality have a map of where farm worker camps are, to facilitate under-

standing and planning for their needs?

100. Are housing options available for migrant workers?

f. Promote community involvement and ownership in local food system

101. Are community members involved in the organization of markets or other food opportunities?

102. Are culturally appropriate, fresh food options available for immigrant and ethnic populations in stores?

103. Is there support for diverse, local, traditional - and fresh - food practices?

104. Does the locality support or have a program to incorporate the participation of local migrant workers into local food farmers' markets and farm stands, to integrate and protect workers while they're in the community, as isolation is a major factor in migrant worker life?

105. Does the locality support or have a program to support agricultural opportunities for low income, immigrant and farm labor populations?

5. LAND CONSERVATION / ACCESS TO LAND FOR FOOD PRODUCTION

106. Does the locality have a policy to support land conservation for food production?

107. Does the locality encourage or support land conservation easements for food production?

108. Does the locality clearly allow the use of public space or land for nonprofit community food gardens?

109. Are there creative leasing or financing models to reduce start-up farming debt?

110. Does the locality have a map of its prime agricultural lands for conservation?

111. Does the locality have a map of prime agricultural lands that it wishes to conserve for food production, agri-tourism, heritage tourism, or other purposes supporting local food production.

112. Does the locality limit development potential in prime agricultural land through purchase of development rights, transfer of development rights, establishment of agricultural districts, or through other means?

113. Does the locality have a green infrastructure plan that incorporates consideration for food production?

Access to sustainably produced food: An investigation of organic food availability in Manhattan, New York

Laura Mirsch,^a Department of Nutrition, Food Studies and Public Health, New York University

Carolyn Dimitri,^{b,*} Department of Nutrition, Food Studies and Public Health, New York University

Submitted 25 April 2011 / Revised 20 June 2011, 13 October 2011, and 1 January 2012 / Accepted 11 January 2012 /
Published online 26 April 2012

Citation: Mirsch, L., & Dimitri, C. (2012). Access to sustainably produced food: An investigation of organic food availability in Manhattan, New York *Journal of Agriculture, Food Systems, and Community Development*, 2(3), 193–209.
<http://dx.doi.org/10.5304/jafscd.2012.023.001>

Copyright © 2012 by New Leaf Associates, Inc.

Abstract

Increasing access to food and improving the sustainability of producing and marketing food are both goals of the “food movement.” One problem embedded in these dual goals is that improving access relies on low-priced food, while increasing sustainability of the food system necessarily raises prices. Further complicating the discussion is the fact that while the definition of a sustainable food system is intuitive, it is also vague, which does not

make an analysis of sustainable food simple. Thus we use organic food as a case study to provide insight into the availability of a sustainably produced (but not necessarily sustainably marketed) food. This paper is a first step toward exploring potential links among availability, access, and consumers. Using a new data set of in-store organic food availability in Manhattan, mapping suggest that stores that carry a wider range of organic products are located in neighborhoods with populations that are both highly educated and affluent. Neighborhoods with a higher proportion of black households have little access to organic food. Bivariate correlation coefficients find that the relationship between education and organic food access increases as the level of education rises, that median household income is positively associated with organic food availability, and that the relationship between the proportion of black residences is weakly and negatively correlated with organic food availability.

^a Graduate student, Department of Nutrition, Food Studies and Public Health; New York University; 411 Lafayette Street 5th Floor; New York, NY 10003 USA

^{b,*} *Corresponding author:* Carolyn Dimitri, Associate Professor; Department of Nutrition, Food Studies and Public Health; New York University; 411 Lafayette Street, 5th Floor; New York, NY 10003 USA; carolyn.dimitri@nyu.edu

Disclosure

Funding for this research was partially provided by USDA’s National Institute of Food and Agriculture, formerly known as National Research Initiative, under NRI Award 2007-04473.

Keywords

demographics, food access, GIS, organic food availability

Introduction and Literature Review

Food access and sustainability of food production and marketing have both been targeted as aspects of the food system that are in need of change. Those working on the ground with the aim of increasing food access seek to address an immediate need: feeding people who have limited access to food, due either to low income or lack of availability in nearby locations. Similarly, those working on the production and marketing aspects of the food system are committed to increasing opportunities for farmers and consumers by creating alternative markets as well as supporting sustainable farming practices, such as organic farming. The task of simultaneously meeting both goals, or making progress toward these goals, appears daunting.

An equitable and just food system, in principle, should be able to satisfy both goals, yet from at least one perspective, that of monetary cost, doing so appears impossible. From the food access side, there is a general notion that meeting the health needs of low-income consumers is best accomplished by increasing access to low-priced, non-luxury food items (Drewnowski & Eichelsdofer, 2009). The necessity of increasing access to food that sells for low prices appears to be a foregone conclusion, and as a result, the focus on low prices requires the food be produced and marketed in our conventional food system. Yet this food is the product of a system that carries negative social and environmental externalities that are well documented (see for example, Kirschenmann, Stevenson, Buttel, Lyson, & Duffy, 2008; Pimental & Pimental, 2008; Tilman, Cassman, Matson, Naylor, & Polasky, 2002). Further, those aspects of the food system most often criticized — such as large farms, large processing facilities, mass produced packaged foods, environmental pollution, and low wages — are exactly those that contribute to low food prices for consumers.

While an intuitive understanding of a sustainable, just food system is easy to imagine,

specific details about the types of farming practices, wages, and distribution channels that compose a sustainable food system are harder to pin down. The farm level is the simplest to think about in terms of sustainability, but even defining and measuring farm-level sustainability is not an easy task. Many environmentally friendly farming practices exist, but there is no concrete definition of how many or which practices are essential to fairly state that a farm is “sustainable” (Tilman et al., 2002). The one production system that is most easily to describe as sustainable is organic agriculture, which encompasses well-defined farm practices, an enforcement system, and, as compared to conventional agriculture, is significantly less damaging to the environment (Greene, Dimitri, Lin, McBride, Oberholtzer, & Smith, 2010).

Once food leaves the farm and moves through the supply chain toward the consumer, there are no guidelines for which elements should be considered necessary parts of a sustainable food system. And how is sustainable marketing connected to sustainable production? For example, organic food — which satisfies on the element of farm sustainability — may not be marketed and distributed in sustainable ways. In fact, the suggestion that organic food has become part of an “agro-industrial complex” reveals some opposition to organic food (see for example, Fromartz, 2006; Pollan, 2001). The critique of organic likely stems from the failure of the national organic standard to encompass broader goals of the food movement, such as issues related to labor, equity, and access, which are all tied to perceptions of sustainability of the food system.

That said, it is safe to say that any efforts to change the conventional food system, through organic agriculture, other forms of environmentally friendly farming practices, smaller farms, and/or alternative distribution systems, are costly. The higher production and marketing costs translate to higher prices for consumers. And thus a conundrum exists: increased food access relies on low-priced food, while the consequence of a sustainable food system is higher-priced food. This conflict raises the question of how can both goals be met without having to sacrifice one important value of

the food movement? While we are unable to fully explore the question in this paper, we open the discussion of these issues with an investigation of availability of the most easily defined sustainable food product (at least from the perspective of the farm level): organic food.

We rely on geographic information systems (GIS) to examine patterns of organic food availability in the context of several socioeconomic characteristics in Manhattan, New York. GIS methods are widely used to examine issues related to food availability and access (see for example, Ghirardelli, Quinn, & Foerster, 2010; Kirkpatrick & Tarasuk, 2010; Rose, Bodor, & Rice, 2011). The choice of demographic characteristics mapped follows from the literature on organic food consumers, which finds that, after accounting for income and other factors, consumers with higher levels of education are more willing or likely to purchase organic products (Dettmann & Dimitri, 2010; Fotopoulos & Krystallis, 2002; Krystallis, Fotopoulos, & Zotos, 2006; Magnusson, Arvola, Koivisto Hursti, & Åberg, 2001; O'Donovan & McCarthy, 2002; Zepeda & Li, 2007). Research has yielded conflicting results on the impact of income and race on the likelihood of buying organic food (Durham, 2007; Govindasamy & Italia, 1990; Loureiro, McCluskey, & Mittlehammer, 2001). Access to organic food, approximated by distance to a Whole Foods retail store, suggests that availability likely has a measurable effect on consumption of organic food (Dimitri & Dettman, 2011).

This paper contributes to the literature by exploring the availability of and access to the most easily defined sustainable food product — organic food — in a major urban area in the United States. One appeal of the work is that it presents an easily replicable methodology. Adoption of the methodology by researchers in multiple locations would make possible comparisons across different regions in the U.S., and could be extended easily to include food with other characteristics, such as fair trade or local food.

Applied Research Methods

The study area is Manhattan, New York, a densely populated area covering approximately 23 square miles (60 square km) that contains very affluent

(for example, Upper East Side) and very poor (for example, Harlem) neighborhoods. Despite Manhattan's reputation for wealth, the city has a fair number of low-income households: five-year estimates for 2005–2009 reveal that 35% of households have an annual income of less than USD35,000 per year (American Community Survey, 2009). The median household income in 2009 was USD59,000, and the mean household income was USD98,000, indicating that a relatively small number of households have very high income (American Community Survey, 2009). Sixty-one percent of public schoolchildren were eligible for free lunch in 2008 (Economic Research Service, 2011). Nearly 10% of families and 14% of individuals had incomes below the poverty level in 2009; these levels exceed those of the total U.S. population. Forty percent of female-headed households with children under 18 years old had income below the poverty line in 2009, which also exceeds the general population (American Community Survey, 2009).

The majority of Manhattan residents are white, but there is significant presence of other ethnic groups in the city; the ethnic diversity is not far from the nation as a whole. The ethnic distribution of residents in Manhattan is 60% white, 16% black, 10% Asian, and 12% some other race. Twenty-four percent are Hispanic or Latino, of any race (American Community Survey, 2009). In comparison, in 2002, the U.S. population (in terms of residents) was distributed as 69% white, 13% black, 4% Asian, and slightly more than 13% were Hispanic or Latino (U.S. Census Bureau, 2004). The one characteristic that does not exhibit much variation is education: 85% of adults 25 years or older were high school graduates between 2005 and 2009, with close to 58% holding an undergraduate degree or higher (U.S. Census Bureau, 2011).

Most researchers studying access to food either sample a small area or purchase establishment data, such as that available from Dun and Bradstreet. Besharov, Bitler, and Haider (2011) point out that establishment data often overlook the multiplicity of retail venues where consumers purchase food. Studies that focus on a small scale are easier to implement, but may yield results that are applicable

only to a small geographic area and are not broadly representative of the U.S. In designing this project, feasibility, dollar and time cost, and the robustness of research results were considered. Ultimately, we decided that the study would cover the entire borough of Manhattan, which would provide a balance of practicality and robustness. Given the denseness of the study area, all retail stores could be identified by walking around the city. And while Manhattan is small in terms of land mass, it is a dense city with 1.6 million residents in 2010 (U.S. Census Bureau, 2011).

Data collection occurred in two phases. The first phase, conducted by 25 food studies graduate students in a course on food systems at New York University, took place during the fall of 2010. This phase entailed dividing Manhattan into 25 segments, which groups walked through, identifying the names and addresses of each store in their region. Stores that sold fluid milk (or more) were included in our dataset; restaurants or retail outlets that sold take-out food only were excluded. Approximately 1,300 stores were located, including Manhattan's *bodegas*, convenience stores, small grocers, drug stores, big-box stores, specialty food retailers, and supermarkets. The uniqueness of food retailing in Manhattan was illuminated by the data collected, as few stores in the city are traditional chain supermarkets and there are a high proportion of independent grocers. The second phase of data collection, conducted in January 2011, consisted of visiting each of the stores initially identified to ascertain the availability of organic food and to collect additional data. A team of five data collectors was hired to (1) check the initial store list, (2) locate stores missing from the initial list, and (3) collect in-store data on the availability of organic, conventional, and local versions of 24 products. Every effort was made to locate all stores that fit our criteria for inclusion. Farmers' markets were excluded from the second phase of data collection because the collectors were in the field during a time the majority of markets in Manhattan were closed.

A short survey instrument that guided the data collection included a list of food products (see table 1); these products were selected because they

were healthy and could be used at home for meal preparation. The products were also selected because they include good representation of the two largest organic food categories in the U.S. — dairy and fresh produce — which together composed about 50% of retail organic sales in 2009 (Nutrition Business Journal, 2010). While other products, such as breakfast cereals and packaged food products, are important in terms of retail sales, the decision to exclude packaged products was made in light of the scarcity of shelf space in Manhattan. Real estate is costly, stores are small, and as a result, most stores in Manhattan carry fewer products, tightly jammed onto shelves, than

Table 1. Organic Food Availability, Manhattan, New York, January 2011 (N=1,260)

Organic product	Stores	
	number	percent
Apples	119	9%
Baby carrots	111	9
Bananas	72	6
Beef	38	3
Broccoli (frozen)	101	8
Carrots	82	7
Cheese	135	11
Chicken	68	5
Corn (frozen)	109	9
Eggs	290	23
Grapes	2	0
Lettuce	40	3
Lettuce (packaged)	137	11
Milk	437	35
Mixed vegetables (frozen)	100	8
Onions	50	4
Pears	56	4
Peas (frozen)	97	8
Potatoes	62	5
Potatoes (frozen)	87	7
Strawberries	23	2
Strawberries (frozen)	57	5
Tomatoes	78	6
Yogurt	272	22

Source: Data collected by authors and research team.

suburban supermarkets. The final dataset, after verification and cross-checking by the team of data collectors, included 1,260 stores. Other data collected, but not used in this study, included availability of organic, local, and conventional versions of the 24 products, the number of cash registers, whether a store accepted any type of federal nutrition benefits, and hours and days open. Seasonality influences the availability of perishable foods, and several of the products on the list were not available in Manhattan in the dead of winter. For example, fresh strawberries are in season during the spring, while grapes are in season from May to December. As the table shows, the organic products carried by the greatest number of stores are milk, eggs, and yogurt. Frozen organic products are not widely carried in Manhattan food retail stores, which may be the result of scarce freezer space.

The availability of organic food was based on the breadth of different organic products stores carried. To capture availability, a simple index was created, calculated as the percentage of these 24 products for sale in each store. If a store had all of the 24 products, the index equaled 100. If a store had none of the organic products, its index equaled 0, while the index for a store with 12 of the organic products was 50. The index provides a discrete “yes or no” measure of availability, and does not differentiate between stores that might have three brands of organic milk versus just one brand. Overall, the index ranged from 0 to 100, with 61% of the stores not selling any organic products. Of those selling organic products, the mean value of the index was 22, while the median was 13, suggesting that there are many stores selling a few organic products. In fact, only 79 stores of the 1,260 carried 12 or more of the organic products on the list, and only one store carried all 24.

Results and Discussion

This research has two key questions: (1) is organic food available for sale throughout all of Manhattan, and (2) which socioeconomic characteristics are related to the availability of organic food? The socioeconomic factors explored are income, education, income and education combined, and race (just for black households). The analysis is

based on maps generated by the GIS software ArcGIS, in which socioeconomic characteristics from the American Community Survey (2009) were mapped and compared alongside the geocoded store locations.

Organic Food Availability

Proximity is important for urban food shoppers in Manhattan. Most consumers shop for food on foot and some use public transportation, while others pay to have their food delivered. Food delivery fees vary by distance from the store, with costs higher for deliveries further away. Just 13% of Manhattan residents have access to a car, but even for those who do, shopping by car is impractical given traffic congestion and lack of parking (American Community Survey, 2011). Thus, distance from stores selling organic food is likely to have a large impact on whether a household purchases and consumes organic food. Further, this line of reasoning suggests that the distance a Manhattan consumer will travel to a food store is significantly shorter than that of a suburban shopper.

As figure 1 shows, food stores are located throughout the city, with the exception of Central Park (the large rectangle in the middle of the city), and Alphabet City (the lower right corner of the city). Each dot represents a food retail store. The map does not identify store types, but the individual observations (summaries available from authors upon request) reveal that small corner stores, stocked mostly with packaged foods and beer, dominate traditionally less affluent areas (roughly speaking the areas north of Central Park; see figure 1 for more detail on income). The open circles signify stores with no organic products, while the triangles indicate retailers that have an index of value 40 or higher (or 10 or more of the organic products on list). The square boxes represent the stores that carry from 1 to 9 of the organic products on the list. Figure 2 maps the location of farmers’ markets in Manhattan. The map indicates the number of days the market is open, and differentiates between seasonal and year-round markets.

Patterns are clear and suggestive: stores with no organic products are located throughout Manhattan, but are concentrated in the neighbor-

hoods above Central Park, many of which are lower income, and include Harlem, Inwood, and Washington Heights. Stores with a wide range of organic products are located throughout the city as well, but are concentrated in the areas on each side of Central Park (the more affluent areas of the Upper West and Upper East sides), and in the downtown areas near Greenwich Village, Chelsea, Soho, and Tribeca. The majority of retail outlets located in the neighborhoods below the northern boundary of Central Park carry organic products. Nearly all of the retail venues that sell 11 or more of the organic products on the list are located below the northern boundary of the park as well. Farmers' market locations follow a similar pattern (figure 2): only two year-round markets are north of Central Park, and the majority are located in area below the northern park boundary.

In many ways, the findings are not surprising. Food stores are businesses that choose to locate in areas that will yield the highest expected profits. The decision of which products to carry is also based on profit maximization. Thus, the dearth of a wide range of organic food in the less affluent parts of the borough is not unexpected. However, by shifting the focus from the stores with many organic products to those with an index in the range of 3–40, which roughly translates to between 1 and 10 different products, the map reveals that at least some organic food is available throughout much of Manhattan. This suggests that retailers find that carrying at least some organic food is profitable.

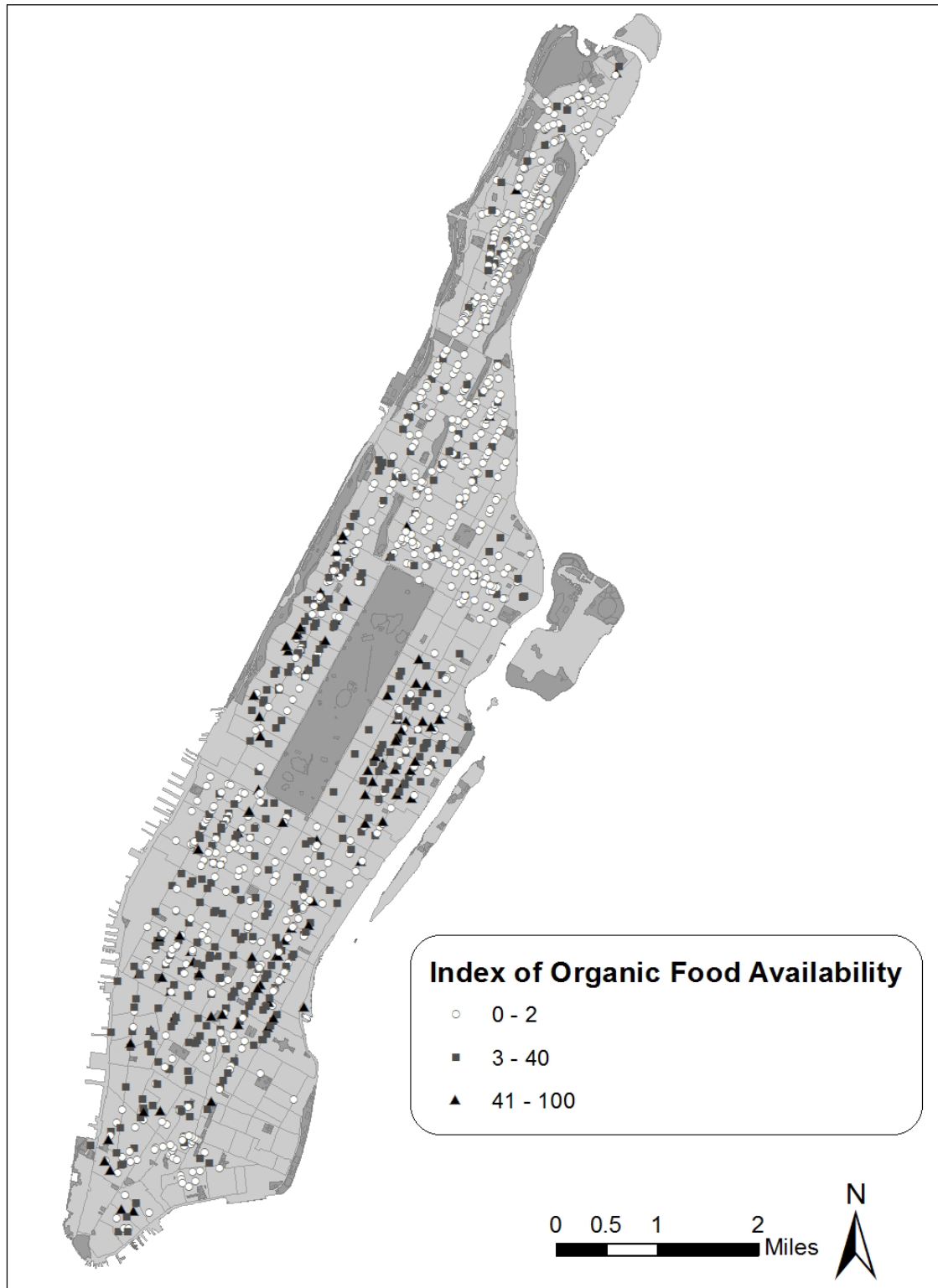
Socioeconomic Characteristics and Organic Food Availability

Previous research on organic consumers suggests that a relationship exists between socioeconomic characteristics of consumers and their likelihood of buying organic food (Dettmann & Dimitri, 2010; Fotopoulos & Krystallis, 2002; Krystallis et al. 2006; Magnusson et al., 2001; O'Donovan & McCarthy, 2002; Zepeda & Li 2007). We investigate whether availability of organic food follows the same patterns, regarding socioeconomic characteristics, as the likelihood of buying organic food. Data on the demographic characteristics

across the census tracts of Manhattan are from the American Community Survey (2009). The U.S. Census Bureau collects this data from a stratified sample, monthly and annually, and develops statistically valid annual data for income, education, ethnicity, and other socioeconomic variables. Our analysis specifically examines the spatial relationship between organic food availability and (1) the percentage of black households in a census tract, (2) household income, (3) level of education attained, and (4) select combinations of household income and education. The current work relies on maps as basic descriptors of how patterns of organic food availability vary with socioeconomic indicators. Future research will incorporate techniques beyond GIS maps, including spatial econometric analysis.

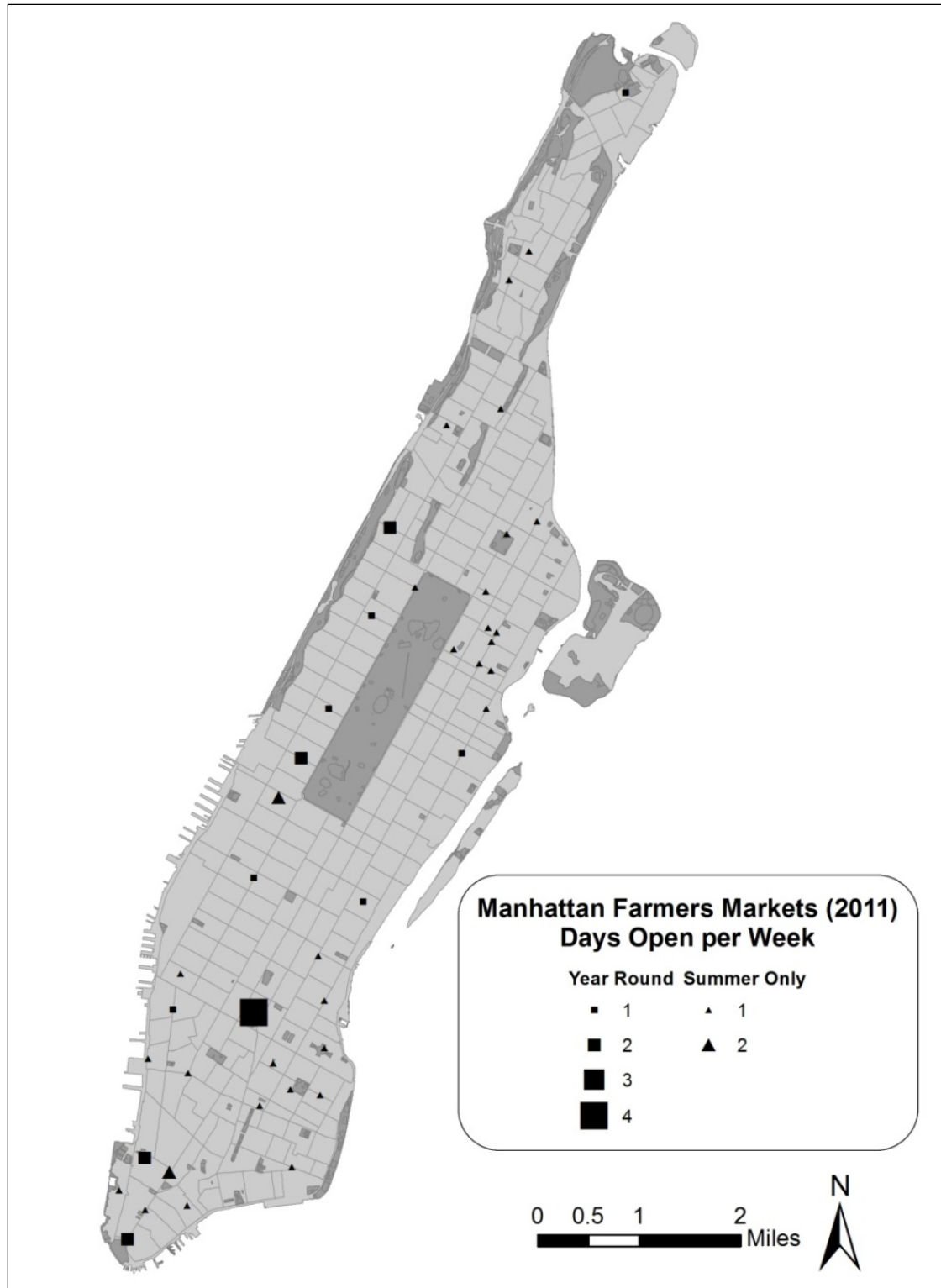
Research into the demographic profile of organic food consumers indicates that black households, when compared to white households, are statistically less likely to purchase organic food. Further, food access studies indicate that supermarkets are not as prevalent in neighborhoods with mostly black households. These findings, unique to black households, raise the question of the black consumer's access to organic food. Figure 3 maps the availability of organic food in conjunction with the distribution of the percentage of black households across census tracts in the city; a darker map color indicates a higher percentage of black households in a census tract. The pattern suggests that very few stores with a high availability of organic food are located in predominantly black neighborhoods. A partial explanation for this pattern is that supermarkets are less likely to be available in neighborhoods with a high proportion of black residents (Powell, Slater, Mirtcheva, Bao, & Chaloupka, 2007), and thus it is not surprising that organic food is less available as well. Future research into the relationship between access to organic food for black households is warranted; it is likely that a complicating factor is related to the general barriers to food access caused by a lack of food stores or the type of food stores in neighborhoods with mostly black residents.

Figure 1. Organic Food Availability in Manhattan, New York, January 2011



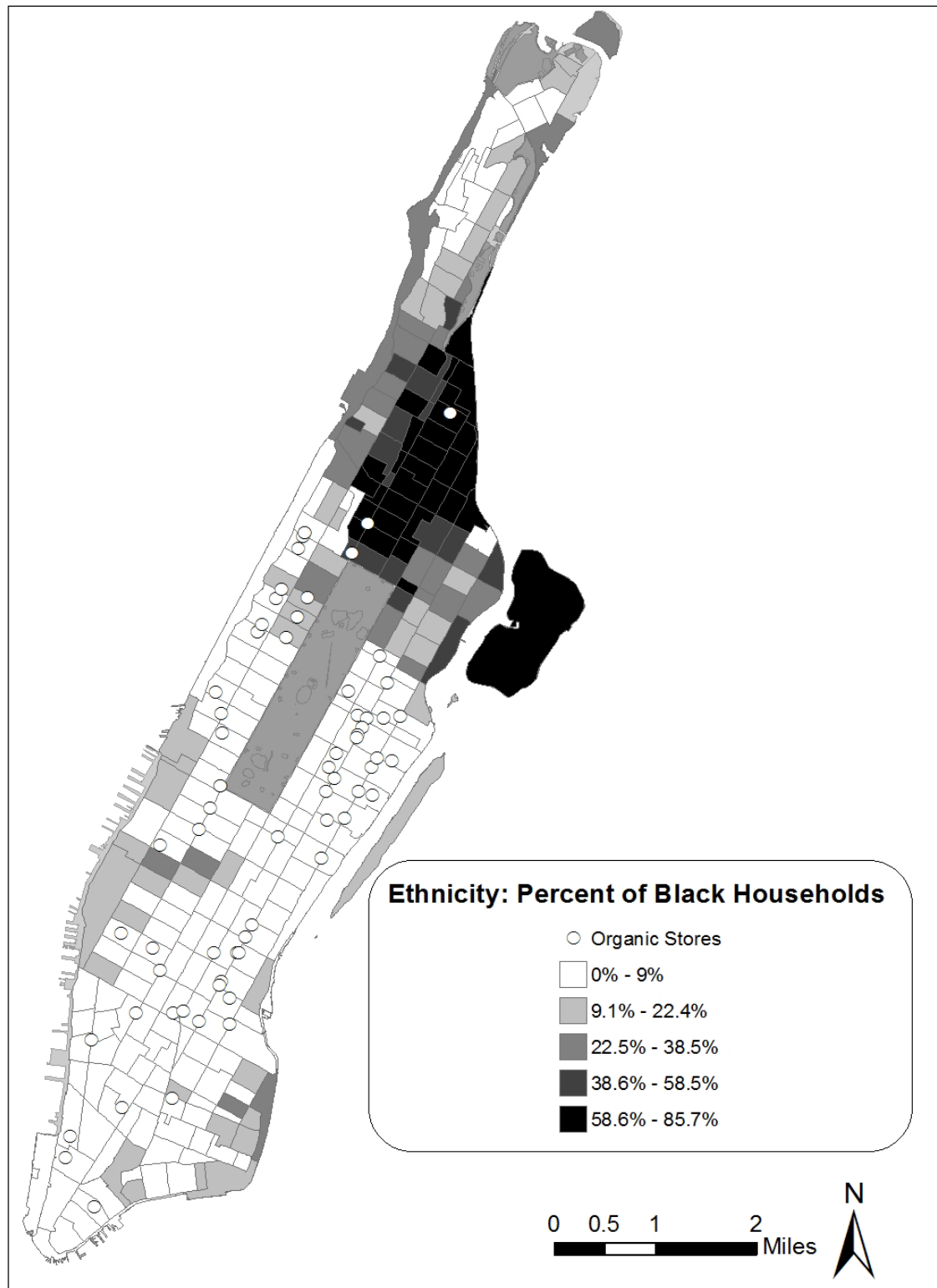
Source: Data collected by authors.

Figure 2. Location of Farmers' Markets in Manhattan, New York, 2011



Sources: Agricultural Marketing Service, USDA, 2011; <http://www.grownyc.org>; <http://www.harvesthomefm.org>

Figure 3. Organic Food Access for Black Households in Manhattan, New York, January 2011



Sources: Data collected by authors; American Community Survey, 2009.

Recent research relating the likelihood of consuming organic food with income has yielded inconclusive results, with some finding that households with higher income are more likely to buy organic food and others suggesting that income is not statistically related to the likelihood of buying organic food (Durham, 2007; Govindasamy & Italia, 1990; Loureiro et al., 2001). Because income and education are highly correlated, it is difficult to isolate the effects of education and income on behavior, including food access. Thus, in an effort to gain a full picture of this complex relationship, organic food availability is viewed in the context of the distribution of income, education, and for select income/education combinations in Manhattan.

Figure 4 presents the findings about the location of organic food stores relative to household income. Using 2009 American Community Survey data, income was grouped into four categories (less than USD30,000, from USD30,000 up to USD75,000, USD75,000 up to USD100,000, and above USD100,000). Each census tract was assigned an income level based on a majority rule; if 40% of the households in a given tract had income in the USD30,000 to USD75,000 range, and this percentage exceeded that of the other three categories, the census tract was classified as USD30,000 to USD75,000. The most obvious characteristic, in terms of household income, is that the portion of Manhattan that is below the northernmost edge of Central Park is composed of census tracts where a majority of the households have incomes above USD100,000. In contrast, lower-income households populate the area north of this boundary, with the majority having incomes below USD30,000 per year. The stores with more types of organic food, with the exception of four outlets, are located in higher-income census tracts.

Education, in terms of consumer likelihood of purchasing organic food, was the socioeconomic characteristic identified in consumer studies as most closely and universally associated with buying organic food. The map of organic food availability and education levels in Manhattan (figure 5) suggests that retailers are aware of this trend, and nearly all stores with a high level of organic food

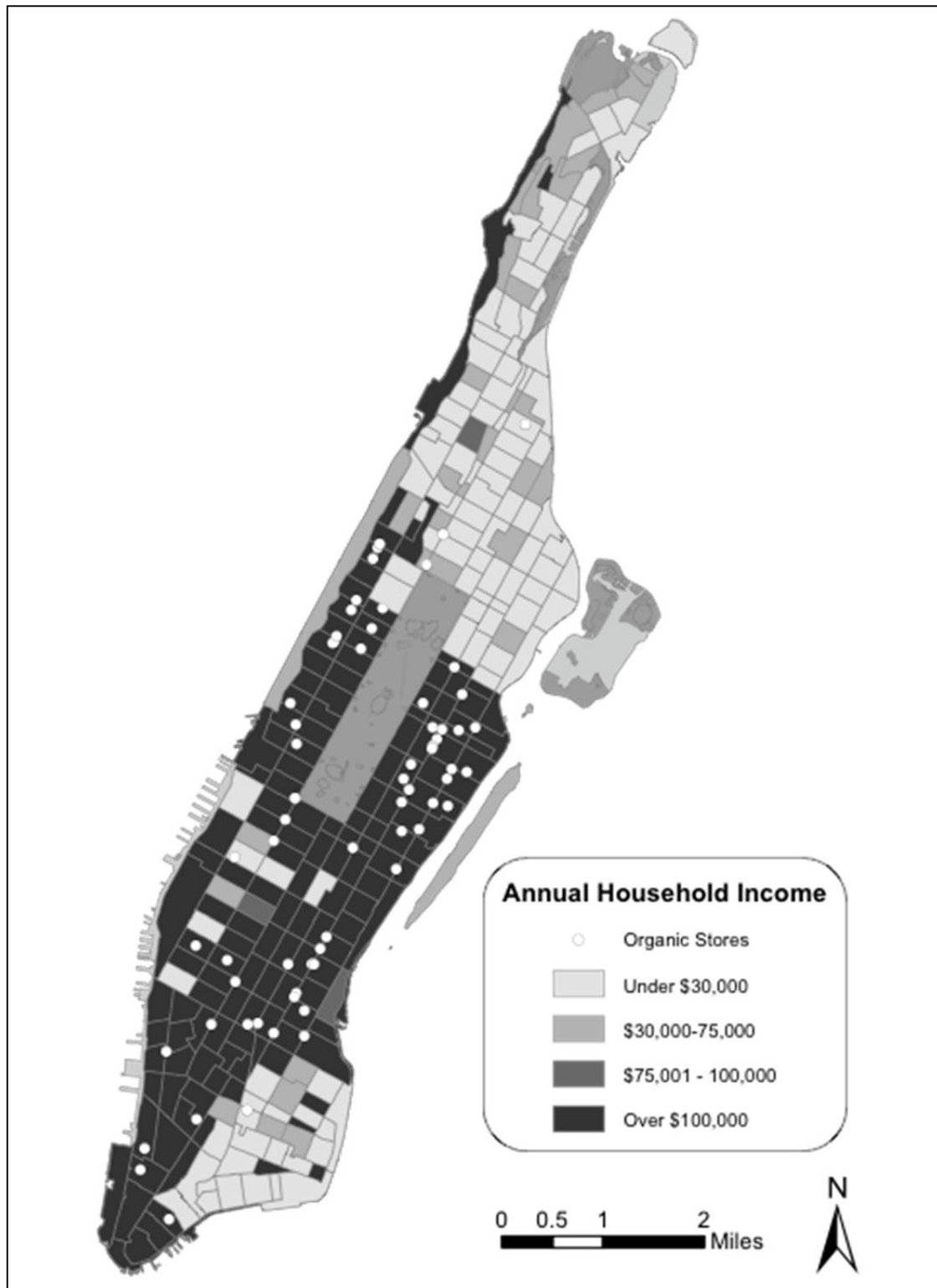
are located in census tracts with educated consumers. The American Community Survey reports education in 14 categories; these were condensed into the following five categories: less than high school, high school graduate (or GED), some college, college graduate, and postgraduate studies. Again, the level of education assigned to each census tract was based on the level of education attained by the majority of the residents. The bulk of highly educated households live south of the northern edge of Central Park, but there are several census tracts north of Central Park that have highly educated households (this largely, but not completely, coincides with the location of Columbia University and Barnard College).

Figure 6 presents a mapping of select levels of income and education; two categories were included. For comparison, the categories are at the opposite ends of the spectrum. One group consists of highly educated, high-income households, and includes census tracts where at least half of the households have income of USD100,000 or more a year, and 30% or more of the households have at least an undergraduate college degree. The other group consists of households on the other end of the socioeconomic spectrum, where at least half of the households make less than USD30,000 per year, and at least 30% of the households did not graduate from high school. The grey census tracts are those that do not fit either of these categories. The patterns between income and education suggest much about the availability of organic food: there is no access to organic food in the low-income, less educated census tracts. Stores are located either in tracts with high levels of income and education (which are likely to have high rents) or bordering on these tracts, where rents are likely to be lower or zoning regulations more accommodating to food stores.

Statistical Assessment of Organic Food Availability and Socioeconomic Characteristics

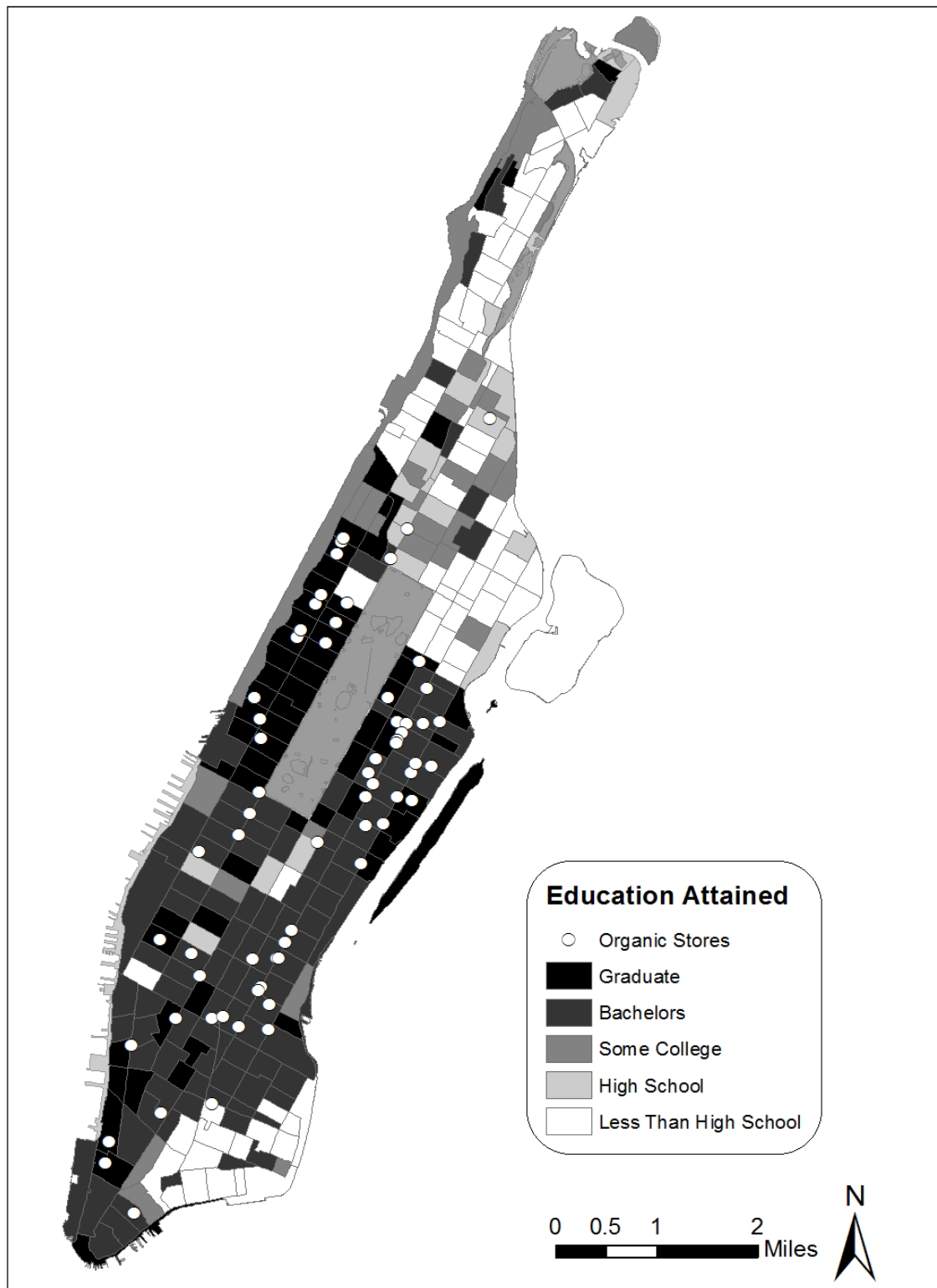
Mapping is a wonderful way to present spatial data visually, but on their own maps reveal no information about the statistical significance of the relationships. One method for assessing the statistical relationship between two variables is a

Figure 4. Organic Food Availability and Income, Manhattan, New York, January 2011



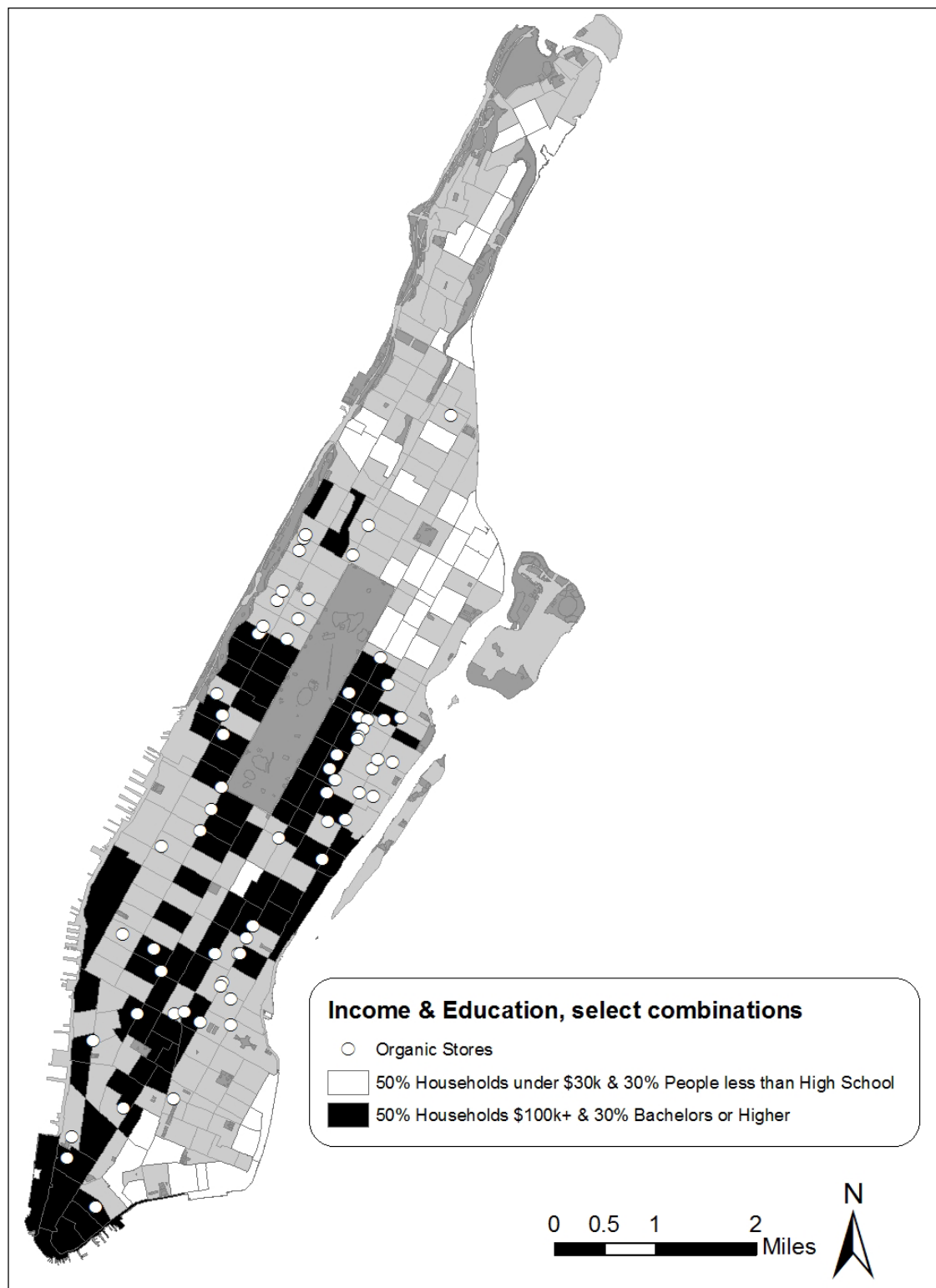
Sources: Data collected by authors; American Community Survey, 2009.

Figure 5. Organic Food Availability and Educational Attainment, Manhattan, New York, January 2011



Sources: Data collected by authors; American Community Survey, 2009.

Figure 6. Organic Food Availability by Income and Educational Attainment, Manhattan, New York, January 2011



Sources: Data collected by authors; American Community Survey, 2009.

bivariate correlation coefficient. Bounded between -1 and 1 , this statistic assesses whether there exists a linear relationship between two variables, the direction of the relationship, and the strength of the relationship. The sign indicates whether there is an inverse or positive relationship, and the value indicates the strength of the relationship. Table 2 presents the estimated correlation coefficients between the organic index (the measure of availability) and demographic characteristics. The statistical findings lend support to the findings suggested by the maps, and further are supportive of the research into consumers of organic food.

The education variables reflect a spectrum of educational levels, and range from percentage of households in a census tract that have less than a high school education to the percentage of households in a census tract who hold a post graduate degree. The sign of the correlation coefficient is both negative and statistically significant for the lower levels of education, suggesting that fewer organic products are available in tracts with less educated households. As the level of education increases, the correlation coefficient increases. A statistically significant relationship was not found between the percentage of households with some

college and organic food availability. The relationship between percentage of households with college baccalaureate degrees and availability of organic food was positive and significant. Median income of the households in a census tract was also positively correlated with availability of organic food, while the percentage of black households was negatively correlated. However, the relationship between the percentage of black households and organic food availability, while negative, is not very strong.

Overall, the findings indicate that as the percentage of educated households in a census tract increases, so does the availability of organic food (although causality was not directly estimated). The value of estimated correlation coefficients increases along with the level of education. That said, the values of the correlation coefficients for the variables are in the range of weak to medium, suggesting that while these demographic characteristics are correlated with organic food availability, other factors must matter as well.

Conclusions

This research is an important first step toward understanding several important unresolved issues in the literature regarding access to sustainably produced food. First, the work is an on-the-ground examination of how the tension between food access and sustainably produced food plays out in the marketplace. Not surprisingly, areas with few food stores and with a narrow range of food available for sale also have very little organic food available. Second, the research also is an initial effort to integrate the notion of availability into the organic food literature. Consumers are clearly not able to buy organic food if it is not easily accessible, and studies of demand for organic food would be both refined and enhanced if measures of availability were incorporated.

It is important to keep in mind that retailer decisions about store location, shelf-space allocation, and optimal product mix are complex, and clearly play a crucial role in the availability of organic food. The outcome of store decisions thus forms the underpinnings of the geographic clustering of organic food availability. The spatial patterns

Table 2. Bivariate Correlation Coefficients Between Organic Food Index and Demographic Characteristics, Manhattan, New York , 2011 (N=1,256)

<i>Demographic characteristic</i>	<i>Estimated correlation coefficient</i>	<i>p-value</i>
Education		
Less than high school	-0.27	0.0001
Graduated high school	-0.24	0.0001
Some college	0.02	0.4785
College graduate	0.26	0.0001
Postgraduate degree	0.26	0.0001
Black as sole race	-0.15	0.0001
Median income	0.32	0.0001

Notes: The analysis was conducted at the census-tract level. Reported p value is for a two-tailed test.
Sources: American Community Survey, 2009; data collected by the authors.

of indices of organic food availability, created from data collected in store, are strongly suggestive that the availability of organic food varies with both income and education. The mappings indicate that stores located in neighborhoods that have a population that is both high-income and highly educated carry more organic food than those located in census tracts with less affluent and relatively less educated households. Further, the mappings reveal that black households have low access to organic food. The maps' suggested findings are confirmed by bivariate correlation coefficients. Some of the findings confirm previous research: areas with mainly black residents and low-income households generally do not have healthy food available for sale, and this was true for the healthy, organic food products studied. This finding might contribute further to an explanation of why studies find that black households are not likely to buy organic food.

Our results raise multiple questions while indicating that integrating availability into the literature promises to be fruitful. Several possible future directions are evident. The first avenue is to conduct an analysis that permits an examination of multiple factors simultaneously, as well as factors in the spatial implications of zoning regulations, land prices, and other neighborhood characteristics. This approach would develop a more spatially explicit model to explain patterns of organic food availability. A second direction would model consumer demand for organic food, incorporating techniques of spatial analysis to capture both traditional demand factors (such as food prices and household income) and spatial factors (such as land values, zoning, and neighborhood characteristics); this line of research is similar in spirit to the economic geography research conducted in land use and farmland preservation models.

Broadening the types of products studied to include local food, fair-trade products, or food with other labels would provide a spatial exploration of food with a wider range of desirable attributes. This line of research would expand the discussion from access to organic food to access to sustainable food, which would be a complex task. Venturing into the availability of sustainable food

requires significant up-front work in defining sustainably produced and marketed food, as well as a mechanism for sorting out foods that fail to meet their promise of being sustainable.

The future research proposed, which is both exciting and promising, requires extensive additional primary data collection; if successful, our understanding will expand tremendously. Our hope is that this paper will not only spur a new line of research into this area, but perhaps more importantly will open a discussion between those working on food access and those interested in food system sustainability.

Acknowledgements

The authors are grateful for the data collection support for the census of food stores in Manhattan provided by the students in the Food Studies program at New York University, in particular the students in Professor Dimitri's Food Systems I, Fall 2010, class. The data on organic food availability in Manhattan was collected by Erik Bielsky, Julia Ficht, Krystal Ford, Laura Mirsch, and Stephanie Rogus. They bravely faced single-digit temperatures as they collected the data in Manhattan during January 2011, and I thank them for their efforts. The project design benefited from numerous discussions with my colleagues Lydia Oberholtzer (Penn State) and Jacqueline Geoghegan (Clark University), who are working on similar efforts in their jurisdictions. We thank four anonymous reviewers for insightful feedback; responsibility for any remaining errors remains with the authors.

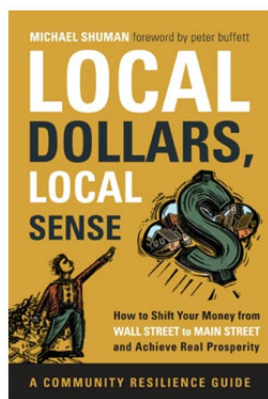


References

- Agricultural Marketing Service, U.S. Department of Agriculture. (2011). *Farmers market search*. Retrieved from <http://search.ams.usda.gov/farmersmarkets/>
- Besharov, D. J., Bitler, M., & Haider, S. J. (2011). An economic view of food deserts in the United States. *Journal of Policy Analysis and Management*, 30(1), 153–176.
- Dettmann, R. L., & Dimitri, C. (2010). Who's buying organic vegetables? Demographic characteristics of U.S. consumers. *Journal of Food Products Marketing*, 16(1), 79–81.
<http://dx.doi.org/10.1080/10454440903415709>

- Dimitri, C., & Dettmann, R. L. (In press). Organic food consumers: What do we know? *British Food Journal*.
- Drewnowski, A., & Eichelsdoefer, P. (2009). *Can low-income Americans afford a healthy diet?* (Center for Public Health Nutrition Public Health Research Brief). Retrieved from <http://depts.washington.edu/uwcpnh/reports/brief1.pdf>
- Durham, C. (2007). The impact of environmental and health motivations on the organic share of purchases. *Agricultural and Resource Economics Review*, 36(2), 304–320.
- Economic Research Service, USDA. (2011). *Food environment atlas*. Retrieved from <http://www.ers.usda.gov/foodatlas/>
- Fotopolous, C., & Krystallis, A. (2002). Purchasing motives and profile of the Greek organic consumer: A countrywide survey. *British Food Journal*, 104(9), 730–765.
<http://dx.doi.org/10.1108/00070700210443110>
- Fromartz, S. (2006). *Organic Inc.: Natural foods and how they grew*. Florida: Houghton Mifflin Harcourt.
- Ghirardelli, A., Quinn, V., & Foerster, S. B. (2010). Using geographic information systems and local food store data in California's low-income neighborhoods to inform community initiatives and resources. *American Journal of Public Health*, 100(11), 2156–2162.
<http://dx.doi.org/10.2105/AJPH.2010.192757>
- Govindasamy, R., & Italia, J. (1990). Predicting willingness to pay a premium for organically grown fresh produce. *Journal of Food Distribution Research*, 30(2), 44–53.
- Greene, C., Dimitri, C., Lin, B-H., McBride, W., Oberholtzer, L., & Smith, T. (2009). *Emerging issues in the U.S. organic industry* (Economic Information Bulletin No. 55). Washington, D.C.: Economic Research Service, U.S. Department of Agriculture.
- The Hartman Group. (2008, July 23). *Organics today: Who's buying and what's next*. Retrieved from <http://www.hartman-group.com/hartbeat/2008-07-23>
- Howard, P. H. (2009). Consolidation in the North American organic food processing sector, 1997 to 2007. *International Journal of Sociology of Agriculture and Food*, 16(1), 13–30.
- Kirkpatrick, S. I., & Tarasek, V. (2010). Assessing the relevance of neighbourhood characteristics to the household food security of low-income Toronto families. *Public Health Nutrition*, 13, 1139–1148.
<http://dx.doi.org/10.1017/S1368980010000339>
- Kirschenmann, F., Stevenson, G. W., Buttel, F., Lyson, T. A., & Duffy, M. (2008). Why worry about agriculture in the middle? In T. A. Lyson, G. W. Stevenson, & R. Welsh (Eds.), *Food and the mid-level farm: Renewing an agriculture of the middle*. Cambridge, Massachusetts: Massachusetts Institute of Technology Press.
- Krystallis, A., Fotopoulos, C., & Zotos, Y. (2006). Organic consumers' profile and their willingness to pay (WTP) for selected organic food products in Greece. *Journal of International Consumer Marketing*, 19(1), 81–106.
http://dx.doi.org/10.1300/J046v19n01_05
- Loureiro, M., McCluskey, J., & Mittlehammer, R. (2001). Assessing consumer preferences for organic, eco-labeled, and regular apples. *Journal of Agricultural and Resource Economics*, 26(2), 404–416.
- Magnusson, M. K., Arvola, A., Koivisto Hursti, U. K., & Åberg, L. (2001). Attitudes towards organic food among Swedish consumers. *British Food Journal*, 103(3), 209–226.
<http://dx.doi.org/10.1108/00070700110386755>
- Nutrition Business Journal. (2010). *U.S. Organic Food Sales: 1997–2010, 2011e–2017e — Chart 22*. Boulder: Penton Media.
- O'Donovan, P., & McCarthy, M. (2002). Irish consumer preference for organic meat. *British Food Journal*, 104(3–5), 353–370.
<http://dx.doi.org/10.1108/00070700210425778>
- Pimental, D., & Pimental, M. (2008). *Food, energy and society*. Florida: Taylor & Francis Group.
- Pollan, M. (2001, May 13). Beyond the organic industrial complex. *New York Times*. Retrieved from <http://www.nytimes.com/2001/05/13/magazine/13ORGANIC.html?pagewanted=all>
- Powell, L. M., Slater, S., Mirtcheva, D., Bao, Y., & Chaloupka, F. J. (2007). Food store availability and neighborhood characteristics in the United States. *Preventive Medicine*, 44(3), 189–195.
<http://dx.doi.org/10.1016/j.ypmed.2006.08.008>
- Rose, D., Bodor, J. N., & Rice, J. C. (2011). The effects of Hurricane Katrina on food access disparities in New Orleans. *American Journal of Public Health*, 101(3), 482–484.
<http://dx.doi.org/10.2105/AJPH.2010.196659>

- Tilman, D., Cassman, K. G., Matson, P. A., Naylor, R., & Polasky, S. (2002). Agricultural sustainability and intensive production practices. *Nature*, 418(8), 671–677. <http://dx.doi.org/10.1038/nature01014>
- U.S. Bureau of the Census. (2009). *Educational attainment* (S1501); *Household income in the past 12 months* (B19001); *Race* (B02001). American Community Survey. Available online at <http://www.census.gov/acs/www/>
- U.S. Census Bureau. (2011). *Tenure by vehicles available*. Manhattan, NYC. B25044. American Fact Finder. American Community Survey.
- U.S. Census Bureau. (2011). *State and County QuickFacts: New York County, NY*. Retrieved from <http://quickfacts.census.gov/qfd/states/36/36061.html>
- U.S. Census Bureau. (2004). *People: Race and ethnicity: The face of our population*. Retrieved from http://factfinder.census.gov/jsp/saff/SAFFInfo.jsp?_pageId=tp9_race_ethnicity
- Zepeda, L., & Li, J. (2007). Characteristics of organic food shoppers. *Journal of Agricultural and Applied Economics*, 39(1), 17–28.



The end of local?

Book Review: *Local Dollars, Local Sense: How to Shift Your Money from Wall Street to Main Street and Achieve Real Prosperity*, by Michael Shuman

Review by Ken Meter, Crossroads Resource Center

Shuman, M. (2011). *Local dollars, local sense: How to shift your money from Wall Street to Main Street and achieve real prosperity*. White River Junction, Vermont: Chelsea Green Publishing.

Published online 19 June 2012

Citation: Meter, K. (2011). The end of local? [review of the book *Local Dollars, Local Sense: How to Shift Your Money from Wall Street to Main Street and Achieve Real Prosperity*, by M. Shuman]. *Journal of Agriculture, Food Systems, and Community Development*, 2(3), 211–213. <http://dx.doi.org/10.5304/jafscd.2011.023.017>

Copyright © 2012 by New Leaf Associates, Inc.

Michael Shuman and interviewer Kate Poole, in *Local Dollars, Local Sense*, have combed the continent to uncover solid stories showing how local investment options have been created over the past 35 years. Their close interviews bring considerable practical wisdom.

Especially encouraging, in so doing Shuman has deepened his use of historical precedent as a way of showing that the foundation already has been built for the future he urges us toward. Such an approach requires less showy articulation than in his previous books. To take just a few examples: He documents the pioneering work of Coastal Enterprises, Inc., in Maine, which has directed USD677 million of loans to 2,104 businesses since 1977 (p. 102). He outlines the success of Boston's Wainwright Bank (now Eastern Bank) to offer certificates of deposit (CDs) that channel investment to the coffee trader Equal Exchange, while offering a modest but solid return to investors

(p. 86). Shuman also captures the way that La Montanita Co-op in New Mexico uses member capital to lend money to local farmers and food producers (p. 61).

Shuman should also be praised for his formal apology that he had underestimated the potential for cooperatives to promote solid local economies. After considerable tutoring from his colleagues, Shuman has realized that co-ops “are the simplest way most Americans...can make small investments in neighborhood businesses” (p. 45).

Still, Shuman's analysis also shows the limits of “going local” when the national policy infrastructure is not supportive. His prime example of a successful co-op is Organic Valley, the brand name for the CROPP Cooperative in Wisconsin.¹

¹ Disclosure: Organic Valley has occasionally underwritten the costs for this reviewer to make public presentations of his data.

Organic Valley is indeed a stellar example, having grown from eight farmers in a living room in southwest Wisconsin who gathered in 1988 with a determination to reverse the ways the economy extracted wealth from their region, into a USD700 million (see CROPP's 2011 annual report) cooperative of farmer cooperatives, engaging 1,700 farmers, in two decades.

Yet Shuman's own analysis shows that Organic Valley is hardly a classic case of small neighborhood investment. Part of the co-op's success is due to building market power by capturing 10 percent of the organic production in the U.S. and distributing products to most metro areas of the U.S. As Organic Valley has grown, it has attracted an average investment of USD18,500 per investor (p. 55).

This is effective business practice, but hardly exemplifies the "neighborhood" paradigm that Shuman espouses. Organic Valley clearly focuses on consumers with spending power, not its rural neighbors, as its priority market. The co-op has also built much local capacity on a neighborhood basis by constructing local clusters of farmers who trade as locally as possible, under the national umbrella of the co-op. None of this quite fits Shuman's folksy imagery, however.

Rather, he appears to take interest in Organic Valley in large part because it appeals to major investors. For similar reasons, perhaps, he also inexplicably promotes some of the larger cooperatives whose farmer-members feel abandoned by their managers' adoption of impersonal corporate practices.

Shuman might have made his case for very local investment stronger if had he examined at greater depth a study he cites, from the University of Wisconsin Center for Cooperatives (Deller, 2009). Shuman relies on this economic impact report to show the strength of the co-op sector. He develops this argument by citing Organic Valley's sales revenue (which he considers to be USD333 million, a figure he has underestimated by half). Deller states, for example, that approximately 350 co-op groceries across the U.S. earn total sales of USD2.1 billion and have 13,600 employees. The co-op grocery sector has played a key role in many communities since the 1850s, although it ebbs and

flows considerably — rising primarily in tough economic times. It has been the paramount vehicle for the emergence of the organic foods market, which has grown in a sustained way more than any other retail channel. This in turn has helped keep mainline supermarkets profitable (Hansen, 2004).² Moreover, without the presence of these co-op groceries, it would have been difficult for Organic Valley to connect to consumers to build its market share.

Such investment is inherently local, and involves small investors indeed. Co-op groceries are small enough, and trusted enough by their members, to respond rapidly as new products are introduced. They have generally engaged early-adapting shoppers. Once their local purchases are aggregated into a national tally, they represent considerable scale.

In *Local Dollars, Local Sense*, it is clear that Shuman is coming up to the limits of the word "local" that has characterized his own branding. Indeed, he has been tutored by people in the food movement (who are not credited) to understand that the critical force driving the emergence of many food businesses, especially in an extractive economy, has been to establish a strong sense of community loyalty as a part of doing business. These are the "triple-bottom-line" businesses that Shuman advocates, but he now grasps new significance in this quest. Shuman concludes, "Even co-ops that sprawl across the country show many of the characteristics of local businesses" (p. 45).

It is good, at last, to see Shuman acknowledge the networks of people who have long known that forming community connections is more important for transforming our food system than a "locality" measured strictly by miles. This, indeed, is one of the reasons that Equal Exchange has thrived: by building sufficient trust with consumers that they learn about shade-produced, bird-friendly coffee, and demand the product from their suppliers.

² See also the Food Marketing Institute (2005, January 2), which used data from *Progressive Grocer* to list a 10-year growth rate of 4.8 percent from 1993–2003 for all supermarket items, including nonfood items (www.fmi.org/facts_fig/keyfacts/decade.htm); *Natural Foods Merchandiser* reported organic sales rising at a steady 16 percent per year, a trend which continues; and also see <http://www.crcworks.org/crcnaturalmkts.pdf>


Forging this knowledge of production techniques, and a sense of personal engagement, create a kind of “locality” despite the distance. Yet this still must be translated, over the long term, into community wealth and capacity.

As I read the book, I spoke with several investors to get their take on its import. The good news is that the book is being read widely. Most were pleased to read the detailed interviews, while being less persuaded by the specific data Shuman presents. One example is Shuman's misstatement of Organic Valley's revenue, cited above, despite his vow that he has “triple checked” all of the book's numbers.

When Shuman argues that the average return for Wall Street investors during the years 1876–2010 was merely 2.6 percent per year, he creates a provocative number. Yet in the next sentences he is forced to acknowledge that 2010 is not a great year for making a comparison, given the stock market's vacillation at the end of that decade. Glaringly absent from his account is the recognition that those who invested in Wall Street between 1876 and, say, 1929, were often investing in local firms, not today's global behemoths. This fact undermines his entire comparison.

Ultimately, Shuman settles on a range of from four to five percent as the annual return from a Wall Street portfolio, substantially less than the eight percent promised by many stockbrokers. He makes this calculation by adding the value of dividends to his calculation, removing the adjustment for inflation, and by assuming that an investor keeps his earnings, rather than reinvesting in stocks. Shuman further acknowledges that the actual rate of return depends mightily on when the investment is made and how long it is kept. If the calculations can be trusted, this is an interesting way to draw a comparison that shows that local stocks may offer a comparable rate of return.

Yet as Shuman discusses the fate of “Sam the Saver,” a mythical person he conjures to portray potential returns for investors (although of course saving is different than investing), it becomes clear that even under Wall Street, few of us have much opportunity to gain enough for a proper retirement. Local investments may be just as good as corporate, but the average investor starting out today, it would seem from Shuman's analysis, has few hopes of stashing away a reliable nest egg. The difference, if I understand Shuman's argument, is that the average investor once gained a greater return from dividends (p. 3), which are less rewarding now.

Indeed, people may well invest for reasons other than gaining the most money: for example, to build community connection, to become more fully engaged in the production process, and to keep ownership community-minded. Yes, precisely the reasons folks have invested in co-ops during tough times. 

For details, see the Chelsea Green Publishing website at http://www.chelseagreen.com/bookstore/item/local_dollars_local_sense

References

- Coulee Region Organic Produce Pool [CROPP]. (2011). *CROPP annual report 2011*. Retrieved from <http://www.organicvalley.coop/about-us/invest/stock-prospectus/>
- Deller, S., Hoyt, A., Hueth, B., & Sundaram-Stukel, R. (2009, June 19). *Research on the economic impact of cooperatives*. Madison, Wisconsin: University of Wisconsin Center for Cooperatives. Retrieved from <http://reic.uwcc.wisc.edu/>
- Hansen, N. (Anchor). (2004, December 3). Organic food sales see healthy growth; mainstream food companies promote natural brands [news report]. Retrieved from <http://www.msnbc.msn.com/id/6638417/>