

Profile

University of British Columbia Food System Project: Towards Sustainable and Secure Campus Food Systems

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Abstract: In this profile article, we report what we consider to be a rich learning experience which intertwines pedagogy and research: a process of community-based action research which has initiated a transition towards the sustainability of the University of British Columbia's (UBC) food system. We call this initiative the UBC Food System Project (UBCFSP). The UBCFSP is a jointly initiated project between the Faculty of Land and Food Systems and the UBC Sustainability Office, and includes nine UBC organizational partners and one collaborator. The project emerged out of the recognition that our global, national, regional, and local food systems are increasingly characterized as socially, ecologically, and economically insecure and unsustainable. As a result, these food systems are experiencing an array of vulnerabilities, particularly those that are demonstrated by profound disruptions in our ecosystem and in a worldwide epidemic of malnutrition. The overall objective of the project is to conduct a campus-wide UBC food system sustainability assessment, where barriers that hinder and opportunities to make transitions towards food system sustainability are being collaboratively identified and implemented. This article is part of a series intending to share the experiences gathered so far through the project. The purpose of this profile is to provide a brief overview of the UBC Food System Project, including the context and significance, both the pedagogical approach and research methods, and some accomplishments to date.

Keywords: sustainability, food security, food systems, transdisciplinary pedagogy and research, community-based action research

CONTEXT: WHAT LED TO THE EMERGENCE OF THE UBC FOOD SYSTEM PROJECT?

Food security and sustainable food systems have become central concerns in the Faculty of Land and Food Systems

at the University of British Columbia (UBC). This is the result of a transformation to more explicitly define its core values and re-orient its program offerings and pedagogy to reflect the mission of educating new generations of scientists, with a solid understanding of ecological, social, and economic sustainability, who would be equipped to solve the most fundamental issues faced by society—those focused around public health, a sustainable food supply, and

the responsible use of renewable natural resources using student-centered learning and interdisciplinary perspectives.

One important outcome of this process of change in the Faculty of Land and Food Systems was the creation of a series of three “Land, Food and Community” (LFC) courses: Agricultural Sciences (AGSC) 250, 350, and 450, respectively, LFC I, II, and III. Required courses for all undergraduate students in our faculty, the three inter/transdisciplinary courses share a focus on sustainability and integrated studies of food systems. The aim of these courses is to contribute to the education of students, both as citizens and professionals, as leaders with a solid understanding of the ecological, social, and economic sustainability of food systems.

The University of British Columbia Food Systems Project (UBCFSP), the focus of this article, is just one of several sustainability projects conducted within the Land, Food and Community series. In this profile, we provide an introduction to the project, including a description of the project origins, structure, pedagogical approach, and research methods, with an emphasis on the role of UBCFSP as an integral component of the LFC capstone course AGSC 450: LFC III. Future papers will focus on research results, findings, and interpretation. Here we elaborate on the origins and evolution of the UBCFSP in close relationship with the first 3 years of the LFC capstone course. The January–April 2002 semester marked the beginning of this new course, which serves as the grand finale for the first stream of undergraduate students to complete their degrees in the Faculty of Land and Food Systems’ newly reformed curriculum. The conversation about a UBC Food System sustainability project in AGSC 450: LFC III merged with the initiatives of UBC’s Sustainability Office.

UBC was the first Canadian university to adopt a sustainable development policy (in 1997), with the explicit intent of becoming a sustainability leader among North American universities, and also was the first to create a campus Sustainability Office (in 1998). The UBC’s Sustainability Office (SO) had helped the university to make progress in its sustainable development policy, with initiatives to reduce paper use, conserve energy, promote sustainable transportation, and explore campus composting options (see Table 1). Otherwise, however, food had not been included in the university’s sustainability agenda.

Meanwhile, UBC’s SO had created Social, Ecological, Economic, Development Studies (SEEDS), a program bringing together university staff, students, and faculty to

collaborate in the research of practical sustainability issues (see Table 1). SEEDS provided an excellent institutional framework for linking the AGSC 450: LFC III teaching team with *operational* food system actors. The AGSC 450: LFC III teaching team along with the SO and SEEDS staff identified major actors in the campus food system and invited them to join the dialogue about a UBC food system sustainability research project. As a result of this dialogue, a collaborative research project emerged—the UBC Food System Project (UBCFSP)—with multiple partners in the UBC food system.

The concept was one inspired by many writers on the issues of sustainability, agriculture and food systems, and learning, but in particular by David Orr’s (1994) “What is Education For?” and Jack Kloppenburg et al.’s (1996) “Coming into the Foodshed”; from Orr, the idea of making the campus and our relation to the places in which we live the focus of our learning; from Kloppenburg et al., the idea of studying local food systems and understanding their relationship to global food systems. Thus, the central theme of the course is the problem of the sustainability of the food system at global, regional, and local levels.

The UBC food system was also chosen as a terrain of investigation because all of our students could relate to the food system, both as professionals and as consumers. Although LFC students have diverse areas of expertise, they have a shared interest in food and the complexity of the food system. More generally, they share the realization that there is no aspect of life that cannot be related to food: from human well-being and health to biodiversity and ecosystem health (in which humans are intrinsically a part), to the impacts of human activity in the natural world, to issues related to hunger and malnutrition, and to the very nature of human communities. Food thus became an ideal terrain for the integration of knowledge.

The approach adopted also recognized the UBC food system as a microcosm of the global food system. On the one hand, our global food system has delivered a revolutionary and unprecedented capacity to increase food production, and to respond to international famine crises. Yet on the other hand, we are experiencing an epidemic of malnutrition, with at least 1.1 billion people suffering from chronic hunger (deficiency of calories and protein) and 2–3.5 billion people suffering from micronutrient deficiency (deficiency of minerals and vitamins), while at least another 1.1 billion people are over-consuming (consuming more calories than they need) (World Health Organization in Gardner and Halweil, 2000). We are also experiencing

Table 1. UBC Food System Project Partners and Collaborators

Partners	Description
Alma Mater Society Food and Beverage Department (AMSFBD) http://www.ams.ubc.ca/content.cfm?ID=291	The AMSFBD is a student-run campus food provider, with over 10 individual food service outlets as well as a catering service.
Faculty of Land and Food Systems (AGSC 450 LFC III students and teaching team) http://www.landfood.ubc.ca/index.htm	The Faculty of Land and Food Systems is one of 12 faculties on the UBC campus. The Faculty's mission is "developing life-long learners who create knowledge to make land, food, and community healthy and sustainable." It offers undergraduate degrees in Agroecology, Global Resource Systems, and Food, Nutrition and Health, and graduate degrees in Agricultural Economics, Animal Science, Food Science, Human Nutrition, Plant Science, Soil Science and Integrated Studies in Land and Food Systems.
UBC Sustainability Office (SO) http://www.sustain.ubc.ca/	The SO coordinates, promotes, and implements sustainability initiatives that enhance UBC's social, economic and ecological sustainability. Created in 1998, it was Canada's first campus SO.
UBC Farm http://www.landfood.ubc.ca/ubcfarm/	The UBC Farm is located on a 40-hectare site and is the last working farm in Vancouver, BC. It is "a student-driven initiative to retain and re-create existing farm and forest lands at the University of British Columbia into an internationally significant centre for sustainable agriculture, forestry and food systems."
UBC Food Services (UBCFS) http://www.foodserv.ubc.ca/	UBCFS is a campus food provider, offering over 20 individual food operations, ranging from franchises, coffee bars, restaurants, and residence cafeterias. It is a self-funded operation.
UBC Social, Ecological, Economic Development Studies (SEEDS) http://www.sustain.ubc.ca/seeds.html	SEEDS is a SO program which coordinates sustainability-related projects involving UBC students, staff, and faculty. Students work on projects with faculty and staff, while earning academic credit.
UBC Waste Management (UBCWM) http://www.recycle.ubc.ca	UBCWM is a department which "provides both waste management services and waste reduction education to the UBC campus community through the coordination of recycling, composting and litter reduction initiatives."
UBC Sage Bistro http://www.sage.ubc.ca/	Sage Bistro is an UBC Food Services operation. It offers West-coast style specialty food items in its dining facility and through its catering services.
UBC Campus and Community Planning (CCP) http://www.planning.ubc.ca/corebus/landuse.html	CCP is "responsible for setting development guidelines for land use and area planning on campus."
Collaborators	
UBC Sauder School of Business Class http://www.sauder.ubc.ca/	The Sauder School of Business is one of 11 schools on the UBC campus. The School "is committed to being a leading international centre for the creation, teaching and application of new, innovative management thinking."

vulnerabilities in our food system epitomized by sudden crises in subsystems that appeared to be economically dynamic (i.e., mad cow disease in the beef sector, avian influenza in the chicken sector). Moreover, the global food system has both contributed to, and been subject to, dramatic ecosystem changes, including water and soil contamination and depletion, energy shortages, decreases in

biodiversity, and climate change. Some of these ecosystem impacts are a consequence of food now traveling much farther to get to our plates—between 2500 and 4000 km for the average food item in North America—than it did in the past (Halweil, 2003).

The UBC campus at Point Grey covers 402 hectares of land in the most westerly part of Vancouver, British

Columbia, Canada. By November 1, 2005, student enrolment totaled approximately 45,000 students attending the winter session and 24,000 in the summer session (University of British Columbia, 2006a). UBC's current campus planning and development process is centered around the vision of creating a "University Town": in this vision, the resident population (including students, faculty, staff, and market residents) is projected to increase from 11,000 in 2006 to 28,116 by 2021 (University of British Columbia, 2006b).

In the context of a global food system threatened by an enormously complex environmental, social, and economic menaces and uncertainties, and based on UBC's public policy in support of sustainability, we thought that the UBC community must assume full responsibility for what happens in our own backyard. Assuming such responsibility required that we improve our understanding of the impacts of the food system currently feeding this community. We needed to envision changes to the campus and food system that would not only ameliorate the negative impacts human density tends to create, but would actively facilitate alternatives to how we dwell, work, and eat that place less demand on natural and social resources and contribute toward a vision of socially, ecologically, and economically sustainable living. Our study of the UBC food system was therefore designed to provide us with the opportunity to understand globally relevant issues while studying a very locally and personally relevant topic and taking action, as a community, to create changes towards food system sustainability. Moreover, studying the university food system and acting upon it provides a rich opportunity to understand that the integrity of the campus ecosystem and the health of UBC's community are intrinsically inseparable.

OVERVIEW OF THE PROJECT

Informed by the factors outlined above, the UBCFSP was founded in 2001. The project commenced officially in 2002 with a minimum 6-year plan that has focused on the following goals:

1. to conduct a UBC food system sustainability (social, ecological, and economic) assessment;
2. to identify barriers that impinge on the ability of UBC food system partners and collaborators to make desired transitions towards sustainability;

3. to create a shared vision, among UBCFSP actors, of a sustainable UBC food system and express it in the form of consensus-based guiding principles;
4. to develop a shared model, among UBCFSP actors, of our transition towards a sustainable UBC food system, including specific goals, steps, and benchmarks to assess progress in the transition toward sustainability;
5. to develop opportunities and articulate recommendations for UBCFSP actors to enhance the sustainability of the UBC food system;
6. to implement measures collectively deemed necessary to facilitate transitions towards UBC food system sustainability (Richer, 2004);
7. to give our students opportunities to apply all their learning from their program specialization and the Land, Food and Community series in a transdisciplinary real life project.

Partners and Collaborators: Radially Organized Research

The UBCFSP is a collaborative project involving multiple partners and collaborators: we have defined those actors who have had a high level of commitment and engagement in the research process (planning and implementation) as partners, and those who have been less actively involved as collaborators. So far, the project involves nine organizational partners and one collaborator (Table 1), and its membership continues to grow.

The project is based on a radially organized team approach (Fig. 1). This organizational structure allows for transdisciplinary, interdisciplinary, as well as disciplinary research, and permits partner involvement with various levels of commitment to the project (Stevenson et al., 1994). The radial organization structure has four components: axle, hub, spokes, and satellites. The axle is the administrative center whose primary responsibilities include: facilitating, administering, and coordinating research projects; writing reports; and seeking funding. The hub is the steering and support committee, consisting of partners and collaborators, whose primary responsibilities include: developing the project vision, providing the axle with suggestions and continuous feedback on proposed new satellite activities, providing support to the satellite research components, and helping the axle with day-to-day management. The satellites are individual and group researchers. They work on specific research projects which are part of larger research questions

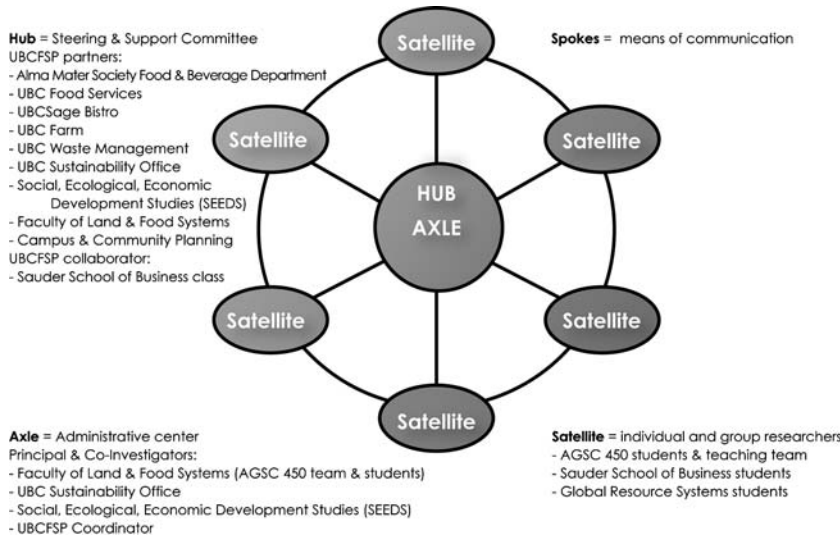


Figure 1. The “radial model” applied to the UBC Food System Project.

by conducting literature reviews, collecting data, designing and implementing initiatives, and developing recommendations to the axle and hub for future projects. The spokes are the means of communication in the project; they connect the hub with satellites through telephone, e-mail, workshops, meetings, or other bilateral consultations. There may also be various degrees of direct interaction or collaboration among satellites. The connecting outer wheel represents the scope of the project and the many horizontal interactions between participants. In Figure 1, the relationships between these four components are depicted, as well as the organizational actors and their roles in the project. To date, it has involved 767 students in 105 working groups over six successive course generations.

Introduction to Pedagogy and Research Design: “Learning with Life”

Using what we have named a “Learning with Life” approach, the project was designed to explore the food system at UBC by purposefully seeking the integration of three dimensions of knowledge: a) personal experience and interests related to food; b) accounts of reality as “it is” (the current situation), as represented by selected reviews of the scholarly literature on the food system from the global to the local, and results of research depicting the current UBC food system; and c) reality as “it should be,” as represented by the UBCFSP participants’ collective envisioning of a sustainable food system for UBC. This approach can also be described as an investigation in the “realm of the potential”: working within the creative tension existing between “experience and interest,” “reality,” and “ideal” (see Fig. 2).

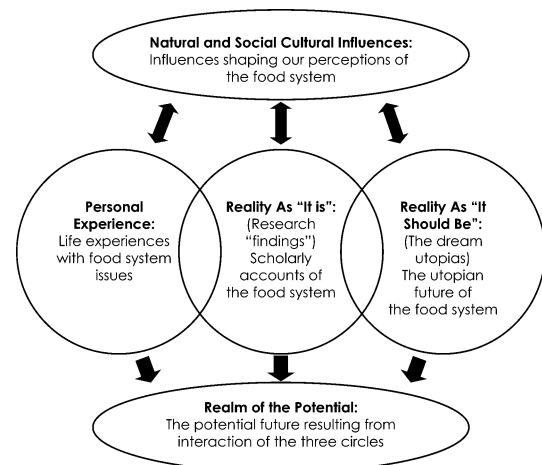


Figure 2. The “Learning with Life” approach used to inform the UBC Food System Project.

In this approach, personal experience initially dictates what is relevant for students and instructors. However, the carefully planned sharing of these experiences, the team-based study and critical appraisal of the literature, and the equally carefully planned sharing of utopian ideas about the food system enrich and often modify initial perceptions of reality and unleash the imagination to uncover the “realm of the potential.” This is the “desired future situation,” or, what may eventually happen, but would never happen if we had not dared to go to the wild utopian ideal. It is the convergence of these three dimensions that provides the “reality check” in which we neither surrender to the tyranny of “reality as it is,” nor escape into impossible utopian flight. This process of envisioning, contrasting “ideals” with “realities” permits a tempering of ideals and a broadening redefinition of what is “realistic.”

A critical element for positioning the study within the “realm of the potential” is the multi-actor component of the project. In fact, without the voice of all key actors in the food system (in this case, the UBC food system), the investigation could remain within the limits of purely academic exercise and its results and recommendations might have no practical application. Bringing the voice of all key players and their perception of their problems and possibilities allows us to understand the institutional and structural constraints that establish limits to the process of transition to sustainability.

Pedagogy: Community-of-Learners Approach

The AGSC 450, LFC III course is a class of approximately 130 (2002) to 200 (in 2006) students and is based on a “community-of-learners” approach with important elements of “Problem-Based Learning” (the usage of real life problems in the discovery of knowledge). One of the primary underlying assumptions in the “community-of-learners” approach is that the diversity within our classroom is the most precious learning resource available to instructors and students

The idea behind diversity is that the dynamics of difference open up new and richer vistas to any subject matter. To be enriched by cultural and professional differences, people do not need to become ethnographers in every culture or experts in all fields of knowledge. It suffices if they understand what happens to “some-thing” (“any-thing”) when we look at “it” from the many perspectives provided by a multi-perspective “moving video-camera.” Of course, every cultural perspective, every theory of reality, every academic discipline, every philosophy, every religion, every paradigm and every ethical position, provides a particular angle of the “camera,” which illuminates something different. No single angle can capture the totality of the “some-thing,” but the wider, finer, and more varied the movements of the camera (if handled with care), the more complete the image obtained of the “some-thing” and the better our understanding of “it.” There are many reasons that can explain this, but perhaps the most important is that “it” or “some-thing” does not exist in itself, but is shaped by its relationships to everything that surrounds it.

Pedagogy: Microcosms

Another key assumption—which follows from the positive appreciation of diversity—is that we cannot look at any time, at every “some-thing,” from all perspectives, simul-

taneously. Therefore, to benefit from a *multi-perspective* view or from all the movements and angles of the camera, we need to find a *terrain of investigation* or *microcosm* that is a good representation of the big picture we are trying to understand. A good microcosm should be the equivalent of a piece of a tapestry that visibly contains all the threads “weaved” into the larger design of the tapestry. In the case of our course, the tapestry is the global food system and the microcosm that represents many of its “weaved threads”—the UBC food system.

PROJECT PROCESS AND METHODOLOGY: COMMUNITY-BASED ACTION RESEARCH

The project is based on community-based action research (CBAR), which can be defined as an “inquiry or investigation that provides people with the means to take systematic action to resolve specific problems”; it enables “people (a) to investigate systematically their problems and issues, (b) to formulate powerful and sophisticated accounts of their situations, and (c) to devise plans to deal with the problems at hand” (Fals Borda and Anisur, 1991; O’Brien, 1998; Fals Borda, 1998; Stringer, 1999; Lantz et al, 2001).

The principles of this methodological approach include: open communication, participation, inclusion, relationship-building, and capacity-building. The intent is to produce locally generated knowledge which leads to locally relevant action and change, the evaluation of which leads to the production of further knowledge, and so on, in an iterative process. In CBAR, to varying degrees, researchers may also be stakeholders and stakeholders are researchers, because everyone is involved in learning about, describing, and evaluating the system together. All participants—students, instructors, food producers, and purveyors, etc.—have been involved at different levels in defining, designing, and implementing the research project.

The cycles of action and research which characterize CBAR are evident in the iterative development of the UBCFSP. Each fall semester (September–December) has been informed by the integration of student findings conducted over the Summer (May–August), which in turn were informed by previous Spring semester. This process is reflected in the different thematic emphasis of each consecutive year of activity which has evolved as followed: “Exploring the UBC Food System” in 2002; “Envisioning and Modeling UBC Food System Sustainability” in 2003,

“Agreeing upon a Vision and Research Proposal and Refining the Vision, Model” in 2004; collecting data, and preparing action plans for next year, and “Moving from Knowing (Theory/Research) to Doing (Action)” in 2006. Details of project development have been documented in annual reports (see, for example, Richer, 2004, 2005) and are described in more detail in Rojas et al. (2005).

Methods of Data Collection

Students review a wide array of secondary sources and have the opportunity to obtain information from invited guest speakers throughout the course. They also conduct informal or formal e-mail and telephone inquiries, distribute questionnaires, and hold personal interviews with partners, other stakeholders, and outside actors (farmers, distributors, food processors, retailers, etc.) whose decisions impinge on system performance (Richer, 2004). Topics addressed have ranged from the desirability of and willingness to pay for local foods, feasibility of local food procurement, and eating and composting habits.

Consensus-building on the Nature of the Problem

Exploring responses to the question “Why do we need to study the sustainability of the UBC Food System in the first place?” has been a paramount component of the project. Responses to this question serve as a starting point to begin a food system assessment, since it is only when we identify problems, and come to reach consensus on the nature of the problems (this involves both agreeing on what we do and do *not* agree upon), we can come up with ways to collectively and meaningfully address them. Each year, students are required to start their group work on the project by answering this question, which involves their review of previous groups’ perception of the problem(s), and they often end their group work with newly uncovered or perceived problems. These problems are discussed at a workshop held each summer and our project partners share these concerns. The most frequently cited food system sustainability problem definitions that students have reported in the project so far are noted below:

- Lack of awareness within the UBC community regarding their food system, benefits of local food, concepts of food system sustainability, and current sustainability initiatives
- Lack of access to unprocessed and identifiable local foods on campus

- Food has traveled excessive miles to get to UBC, and negative environmental, social, and economic impacts are associated with these high food miles
- UBC’s population is growing and we are experiencing increased urban encroachment, and a loss of green space on campus
- Lack of awareness within the UBC community that we have an operating farm
- UBC farm is currently economically unsustainable
- Uncertainty as to whether or not the UBC population is supportive of local foods (Richer, 2004).

Consensus-building on the Vision

A key moment in the yearly iteration of the Project is the community-of-learners-based process of envisioning a sustainable campus food system. Every term, we ask our students “What is your vision of a sustainable food system?” Group responses ranged from listing very specific attributes, to very broad and encompassing visions of what a sustainable UBC food system should look like to contribute to the health of our UBC community and to the health of the ecosystem that supports the campus. These enabled formulation of a vision statement which synthesizes ideas on the attributes of a sustainable food system. It gave us a first indication of “where we want to go” and “what our common dream looks like.” The resulting vision statement consisted of eight guiding principles, which are those attributes that should guide us towards our vision. This vision statement was presented in 2004 at a partner workshop to determine whether consensus could be reached, and it was. In 2005, based upon input from partners, the students’ team reports, and in-class feedback from students, we modified the vision statement to the current version outlined in Table 2. In this vision statement, each of the principles is related to how to preserve and enhance human and ecosystem health simultaneously. We believe that this also provides learning outcomes that foster the collaboration among students from diverse program specializations of Food, Nutrition and Health, Plant Sciences, Animal Sciences, Soil Sciences, Food Resource Economics, and Global Resource Systems.

Improving Understanding of Specific Aspects of Food System Sustainability

In addition to contributing to the theoretical development of the general concept of a sustainable food system and how to assess it, the project has addressed a series of specific

Table 2. Vision Statement for a Sustainable UBC Food System: Eight Guiding Principles

1. Must protect *and* enhance the diversity and the integrity of the natural ecosystem and resources that supports it.
2. Relies on local inputs when possible, where inputs and waste are recycled and/or composted locally.
3. Is a secure system that provides food that is affordable; available; accessible; culturally, ethically, and nutritionally appropriate and safe; and can adapt to changes.
4. Nourishes the present generation to provide for healthy diets that do not compromise the food security of present or future generations.
5. Nurtures feelings of community and promotes enjoyment of food around the food table.
6. Fosters awareness, understanding, and personal responsibility within the community of every component from production to disposal.
7. Contains a balance of imported and local foods that come from socially and ecologically conscious producers to ensure long-term financial viability.
8. Consumers, food workers, and educators are made aware of the reciprocal impacts that the UBC food system has on surrounding food systems.

aspects, issues, or themes pertaining to the sustainability of the system. These specific themes emerged from student findings and through dialogue among the project partners and collaborators as the project unfolded. This iterative process makes possible the identification of the main themes to be researched, which are provided to the students in the form of highly elaborated scenarios and cases to be studied and pursued (see details in Rojas and Richer, 2006; Richer, 2005). These themes are broad but they are articulated in very detailed and specific tasks. Thus, during the duration of the project, we have embarked in an examination of the debates on food security, the historical evolution of the UBC food system, drawing comparisons with other campuses and identifying structural forces that may enhance or hinder the transition towards sustainability. To do that, the students work with principles, criteria, and indicators to assess the sustainability of systems of food production; the distance food travels to get to UBC's consumers; and what the university does with the end products of the food system (waste management, composting, recycling). Within the same year, while some groups have embarked in commodity chain analysis and food mileage analysis to investigate the "true cost" of food, others worked on ways to determine, with UBC consumers and food providers, the desirability and feasibility of relatively re-localizing the university's food systems, and the role UBC's organic farm can play in that direction in collaboration with other local producers and food suppliers.

These scenarios and case studies also find continuity between years, include action plans, ranging from educational campaigns on campus to increase participation in recycling, reusing, and composting; support for locally and

sustainably produced food, new and more diverse menus, and the generation of ideas that can enhance the sustainability of the new campus land use and development plans. To assess progress over time, specific benchmarks and indicators have been developed which in turn will help make transitions towards a sustainable UBC food system. Future articles will report on these findings and provide a picture of what the project has accomplished, both in terms of education for sustainability and concrete achievements on the transformation of the UBC Food System.

CONCLUSION

The project, in its 5th year, is still unfolding. "Why do we need to study the sustainability of the UBC food system in the first place?" is a question that we continuously pose, and seek to collectively answer, as part of the research process. As an exploratory study, we are still defining the problem, learning about how the general concerns about the food system at the global scale are manifesting themselves at UBC. We are still in the process of describing and assessing the current situation, identifying the key issues, and exploring solutions for the specific time and place. Integrating food system sustainability theory, community-based action research, and pedagogical approaches of pragmatic idealism, community-of-learners, and microcosms, the project is a unique intertwining of pedagogical and research experiences: it is perhaps best described as an active, collaborative learning process towards human adaptation for sustainability. The project explores ways to create a collective will aiming at socially constructing a new perception of the inseparability of human and ecosystem

health with the overt aim of facilitating campus-wide institutional changes in our food system from production to end disposal. The project demonstrates that working collaboratively for sustainability of the campus food system provides excellent opportunities to learn how to assess, design, and, at least to some extent, locally transform the food system, generating dynamics that can influence its wider context.

Evaluation of the project is an ongoing activity based on students' course evaluations, students' performance, annual workshops with all partners, and more informal ways. Evaluation on completion of the project, using benchmarks, and indicators agreed upon with all partners, will focus on action-research results and their contribution to the transition towards sustainability in the UBC food system. From a pedagogical perspective, we intend to evaluate the students' (hopefully enhanced) capacity to conduct food system sustainability assessments elsewhere, based on their ability to look at the world through many different lenses using integrative and collaborative learning skills, with the ultimate goal of educating life learners (including ourselves) who are equipped and passionate to make a difference.

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REFERENCES

Fals Borda O (editor) (1998) *People's Participation: Challenges Ahead*. New York: Apex Press/Intermediate Technology Publications

Fals Borda O, Anisur RM (1991) *Action and Knowledge: Breaking the Monopoly with PAR*. New York: Apex Press/Intermediate Technology Publications

Gardner G, Halweil B (March 2000) *Overfed and Underfed: The Global Epidemic of Malnutrition*, Worldwatch Paper 150, Peterson JA (editor), Washington, DC: Worldwatch Institute

Halweil B (2003) *The Argument for Local Food*. Washington, DC: Worldwatch Institute

Kloppenburg J, Hendrickson J, Stevenson GW (1996) Coming into the Foodshed. *Agriculture and Human Values* 13(3):33–42. The Centre for Integrated Agricultural Systems: University of Wisconsin. Available: <http://www.cias.wisc.edu/pdf/coming-in.pdf> [accessed May 1, 2006]

Lantz PM, Viruell-Fuentes E, Israel B, Softley D, Guzman R (2001) Can communities and academia work together on public health research? Evaluation results from a community-based participatory research partnership in Detroit. *Journal of Urban Health* 78(3):495–507

O'Brien R (1998) An Overview of the Methodological Approach of Action Research. In: *Teoria e Prática da Pesquisa Ação [Theory and Practice of Action Research]*, Richardson R (editor), João Pessoa, Brazil: Universidade Federal da Paraíba. English version available: <http://www.web.net/~robrien/papers/arfinal.html> [accessed December 10, 2006]

Orr D (1994) What is education for? In: *Earth in Mind: On Education, Environment and the Human Prospect* (1st ed.), Chapter 1, Orr D (editor), Washington, DC: Island Press, pp 7–16

Richer L (2004) Paths towards a Just, Sustainable, and Food Secure UBC Food System: 2004 UBC Food System Project (UBCFSP) Report. University of British Columbia, Vancouver: Campus Sustainability Office. Available: <http://www.sustain.ubc.ca/matrix/seedsindex/seedsfood.htm> [accessed December 10, 2006]

Richer L (2005) Walking the Path towards a Just, Sustainable and Food Secure UBC Food System: 2005 UBC Food System Project (UBCFSP) Report. University of British Columbia, Vancouver: Campus Sustainability Office. Available: <http://www.sustain.ubc.ca/matrix/seedsindex/seedsfood.htm> [accessed December 10, 2006]

Rojas A, Richer L (2006) UBC Food System Collaborative Project V AGSC 450: Winter 2006. Available: http://www.land-food.ubc.ca/research/documents/rojas_UBCFSP_Project_overview.pdf [accessed December 10, 2006]

Rojas A, Wagner J, Richer L (2005) The Dreaming and the Making of a Sustainable University Food System: The University of British Columbia Food System Project (UBCFSP): A Collaborative, Sustainability-Driven Project for Learning and Change. Available: http://www.landfood.ubc.ca/research/faculty_webpages/rojas/UBCFSP_FINAL_PAPER_SEPT-21_2005.pdf [accessed December 10, 2006]

Stevenson GW, Posner J, Hall J, Cunningham L, Harrison J (1994) Addressing the challenges of sustainable agriculture research and extension at land-grant universities: radially organized teams at Wisconsin. *American Journal of Alternative Agriculture* 9:76–93

Stringer ET (1999) *Action Research*. 2nd ed. CA: Sage: Thousand Oaks

University of British Columbia (2006a) Appendix 1: Enrollment Statistics. UBC Calendar 2006–2007. Available: <http://www.students.ubc.ca/calendar/index.cfm?page=appendix1> [accessed December 10, 2006]

University of British Columbia (2006b) University Town: U-Town Library—Frequently Asked Questions. Available: http://www.universitytown.ubc.ca/library_faq.php [accessed December 10, 2006]