Adding Values through Practical Education in Agroecology: 
Review of Canadian Student Experiences

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Abstract
Experiential learning builds on the strong conceptual foundation established in the last century especially by John Dewey and David Kolb. The process generates high expectations in students, recognizes many ways of knowing, reflecting and evaluating, and creates education relevant to past experience and real world challenges. Canadian students have been active participants in the Norwegian programs in Agroecology, an integrative field of science that explores the ecology of farming and food systems. Focus of an 8-week farming systems course at the Norwegian University of Life Sciences is developing a farm plan that meets the long-term goals of a farm family. A subsequent 8-week food systems course has student teams developing comprehensive food system plans for counties in Norway. Relevance of the program for Canadian students is especially strong due to similarities in crop and livestock species, cultural heritage and values, and interdisciplinary education. Undergraduate students in Canada often gain a rich background in group dynamics and conducting practical team projects. The Nordic programme adds ethics and values to the production, economic, and environmental emphasis found in their prior courses. Students who have found the courses enriching have come from a diverse range of backgrounds, including animal science, agronomy, environmental science, history, sociology and geography. This review uses the method of testimonials from Canadian students and their performance in subsequent positions to provide a rich qualitative picture of the relevance of this education to their growth as scholars and preparation to enter the professional world as agroecologists. The goal is to describe how they have incorporated personal values into study of farming and food systems.

Keywords: pedagogy, agroecology, experiential learning, action learning, problem based learning, farming systems, food systems.

Introduction
The Nordic Agroecology Program is designed to foster experiential learning through open-ended case study projects by student teams on farms and in the food system (Francis et al., 2009). Based on early work by innovative educators, our program operates under the assumption that often there is a larger gap in education between knowledge and action than between ignorance and knowledge.
This paper discusses experiential learning as experienced and described by Canadian students who have taken the courses in Norway and have chosen to work on MSc thesis projects in Agroecology and their subsequent job choices and performance. The literature review borrows heavily from the research by Alexandra English, who completed the MSc in 2007 on farmer learning needs in Ontario (English, 2007). Our voices are prominent in the paper, as students and instructors explain what the course has meant and how values have been added to the learning landscape. This method is essential to capture the precise ideas of each individual.

Late in the nineteenth century, educator Francis Parker saw children “experiencing a continuous process of acquiring knowledge, an ever-growing and ever-changing appreciative mass”, and defined “the child’s continuously evolving outlook, [that] should be the organizing centre for the curriculum” (Parker, 1894). In his landmark writings, Dewey (1916; 1938) promoted collaborative learning environments and “democracy in education,” and found a “fundamental unity … in the idea that there is an intimate and necessary relation between the processes of actual experience and education.” These future-thinking generalists saw education as a continuing process that evolved within the context of study and application.

Kurt Lewin (1951) further developed the concepts of learning based on experiences, and laid out a model of experiential learning that was later used by David Kolb in his book on the same topic (Kolb, 1984) The interactive teaching methods of Brazilian educator Paulo Freire (1970) encouraged participatory learning and challenging the teacher, concepts which we have embraced in the design of the agroecology education program in Norway. In fact, in giving responsibility for learning to the students, the faculty in a sense is giving up some of the traditional power of the professoriate and empowering students to challenge and explore their own routes through the learning landscape. Although we have facetiously called this “a pedagogy of no mercy toward the instructors”, as teachers we consider the process a vital step toward autonomous and lifelong learning (Østergaard et al., 2010).

Applications of the principles described by Dewey, Lewin, and Freire have included Lewin’s (1951) research on group dynamics that builds on prior individual experiences of students and guidance by faculty. Lewin emphasized the value of subjective personal values and experience, in addition to facts and what scientists often call “hard data.” Kolb (1984) elaborated on the cyclical steps in learning: experience, reflection, abstraction, and action, each building on the prior step. Boud and Walker (1991) enriched the Kolb learning cycle approach by explicitly recognizing the importance of context, and this is a central theme in our applications of learning theory to agroecology. In the process of learning, each individual’s prior frame of reference is challenged and transformed as a result of new experiences in the classroom and discussions, and in the field with clients (Mezirow, 1991).

In agriculture, these principles have been applied to the study of systems through practical on-farm projects where students work with farmers and their families to design improved future outcomes in line with farmer goals (Bawden, 1991; Bawden et al., 1984). Theory of systems approaches and links to the Kolb Cycle have been thoroughly explored by Wilson and Morren (1990). The integration of soft systems methodology in agricultural systems builds on ideas of Peter Checkland (1981; 1999). Formal learning in the classroom is only one part of the total learning environment, and our activities in lectures, discussions, and projects should build on the situated learning that is part of each student’s everyday life and experience (Knapper and Cropley, 2000).

In the Nordic agroecology program, we have built on these theoretical concepts to design experiential learning activities that put students in working relationships with farmers and key players in the food system (Lieblein et al., 1999). This approach provides stark contrast to much of the current instruction in many agricultural universities, which often relies on traditional lecture and discussion format coupled with some field trips (Francis et al., 2001). One conceptual direction that has shaped the holistic design of the program is an expansion of the concept of agroecology to embrace “the ecology of food systems”, from natural resource use to production, from processing to packaging and marketing, and to also include consumer issues (Francis et al., 2003). Another is to change the focus from teacher to learner, and from emphasis
on the course content to the type of agroecologist
that we want to emerge from the program (Lieblein
et al., 2005). This has required re-thinking courses
and sequences, resulting in greater student
autonomy in designing their programs of study
(Salomonsso et al., 2005). We now envision the
learning process as progressing up a learning
ladder from acquiring skills and learning theories,
to immersion in practical problems in the field, to
visioning future improved situations, and finally to
putting programs in action (Lieblein et al., 2007).

Our goal is to understand how Canadian students
have added values to the learning process,
clarifying their own and exploring those of the
farmer and community clients. Using specific
quotes to illustrate the theme is an appropriate
method for this qualitative evaluation, an approach
that contrasts with most technical articles. The
method used here also demonstrates the difference
between our learning landscape in agroecology and
many other academic courses that are considered
by students and instructors alike to be totally
objective and value free. We disagree with that
premise, and think that much of the rich nature of
human decision making is indeed imbedded in
personal values and world views.

Nordic Agroecology Program

The present Nordic Agroecology MSc program has
grown from a series of PhD short courses in the
mid-1990s (Lieblein et al., 1999). There is a two-
module series of experiential learning courses,
Agroecology and Farming Systems (PAE302) and
Agroecology and Food Systems (PAE303), each 8
weeks long and each worth 15 ECTS [8 semester
credit hours in the Canadian or U.S. system].
Courses include lectures, discussions, structured
reflections, and almost importantly, practical
student group projects in the field. In the farming
systems course each student team is assigned to a
farm, and their task is to meet the farmer and
family, learn about their philosophy and goals, tour
the physical facilities and fields, evaluate and
analyse the current system, and develop a series of
practical scenarios that can help the family meet
their goals over the next decade. Examples of farm
family goals are to convert the farm to organic
production, to establish a mixed crop/livestock
system, or to change over to direct marketing of
value added products. Specific examples of
scenarios to meet one of these goals, e.g. direct
marketing include packaging and direct sale from
the farm, sale through a box scheme to families in
the local community, delivery and sale to local
schools and other public institutions, and coopera-
tive marketing with neighbors after pooling
resources for processing equipment.

In the food systems course student teams are
assigned to one county in Norway, and they meet
with government officials, farmers, processors,
marketers, and consumers to learn about their goals
and to propose scenarios for the county to achieve
a desired future situation. Goals could include food
import substitution with local production, estab-
lishing viable direct marketing schemes, or
converting a proportion of the county’s food
supply to organic products. Specific examples to
meet one of these goals, e.g. food import
substitution, include increasing production of
products with local demand, establishing a local
brand and cooperatively marketing to retail shops,
and organizing a community food festival to
educate and promote local products [note: a food
festival planned by UMB students has been held in
2011 and 2012, and is likely to become an annual
event]. Students have found these projects to be
challenging, but also fulfilling because they are
working with real clients in the field to solve real
problems. Some students take only this semester
then return to their home universities to continue
studies and the MSc thesis.

The second and third semesters of the two-year
Nordic MSc programme for most students include
courses in Norway or other cooperating univer-
sities, most often in Denmark, Wales, Netherlands,
or Sweden. The thesis can be either one or two
semesters (30 or 60 ECTS), and research may be
conducted in Norway or wherever the student finds
a challenging question and support for field work.

For example over the past seven years, students
have done research in Argentina, Cuba, Colombia,
Nicaragua, U.S., Canada, Cameroon, Uganda,
Tanzania, Nepal, and Sri Lanka. In each case they
have included both hard systems and soft systems
methodologies, and focus has often encompassed
production, economics, environmental impacts,
and social implications of developing more
sustainable farming and food systems. Forty
students have completed the MSc thesis in this program thus far.

**Experiential Learning in Agriculture in Canada**

Given this background on the Nordic program, why are students from Canada attracted to this type of learning environment and what preparation have they experienced? A foundation for sustainable agriculture research was established by Stuart Hill and colleagues at McGill University (Hill and MacRae, 1988). They outlined the need for short-term and long-term focus, thinking of agriculture as a system that is more than a collection of components, establishing a broad socioeconomic and ethical framework for study, and meeting the perceived learning needs of today’s students. MacRae et al. (1993) provided a valuable framework for developing more sustainable farming systems, based on the hierarchy of 1) efficiency of input use, 2) substitution with less expensive or more environmentally sound inputs, and 3) most importantly the redesign of farming systems to be sustainable and environmentally sound. Other building blocks come from the sustained work on pastures and forages of Dr. Ann Clark at Guelph University (eg. Clark and Poincelot, 1996), research that obviously is focused on integrated crop/animal systems and on whole farm systems. These programmes are now providing one foundation for teaching sustainable agriculture competence in Canada.

Search of the ATTRA web site for academic programs in sustainable agriculture, organic farming, or ecological agriculture reveals a number of current programs in Canada: [http://www.agricultureb2b.com/biz/e/Ag-Education/Canada/]. There are degree or certificate programs at University of British Columbia, Guelph University, University of Saskatchewan, McGill University, and University of Manitoba; in addition there are courses related to organic farming or sustainability in fourteen other universities and colleges.

One example of the academic programs in agroecology is the practical program at University of British Columbia. Jointly offered on two campuses, the program is co-sponsored by the Faculty of Land and Food Systems and the School of Arts and Sciences. The program has a science-based format, and is directed to prepare students to contribute to a healthy, safe, and sustainable food supply, while preserving biodiversity and natural ecosystems [http://www.landfood.ubc.ca/undergraduate/programs/APBI].

English (2007) surveyed the programs available today to bring farmers into sustainable agriculture, and found limited support by governments and universities for new farmers who do not fit the educational and socioeconomic demographic of the mainstream farmer community in Canada. For this reason, she worked with Dr. Ann Clark of Guelph University and the CRAFT group of farmers in Ontario to establish a new major in organic agriculture that includes both academic preparation and field internships on participating farms. This program now provides opportunities for experiential learning in Ontario [http://www.organicag.uoguelph.ca/].

Based on the experiences of six Canadian students who have different university backgrounds in Canada, and who have all participated in the Nordic agroecology programme, it appears that the mix of science and practical application in a production context that is similar in latitude and climate has been appealing. Here we report on their experiences and how they have explored individual values in pursuit of research and academic learning.

**Student Experiences on Learning in Canada**

Many Canadian students in agriculture and natural resources have prior undergraduate experience in team projects, problem-based learning, and other experiential approaches to learning. Some curricula were confined to class and library research and study, while others provided a hands-on experience with clients in the field.

*I first encountered experiential learning during my undergraduate degree in Agroecology at University of British Columbia. We worked on numerous case studies throughout the years that pertained to real farmers and real issues. During the last year we did an analysis of the UBC food system and determined ways in which the university could improve the overall sustainability of the system* [Andrea Lawseth]
Not everyone discovers a program right away that is well suited to their interests, nor starts out in the most appropriate program of study. It takes time to find the right niche. This is illustrated by a student at McGill University, with explicit reference to personal values and priorities.

A disappointing first semester in biology at McGill, with hours of memorizing forgotten within days, was offset by a summer farming in Belize and a homecoming discovery of the new concentration “Ecological Food Production” within McGill’s fast-growing School of Environment. A few months of farming and I had caught the experiential learning bug. Suddenly I wanted all learning to approximate my experience on that farm. I wanted to be immersed in an ecosystem, attentive to its changing cycles, engaged with all my senses, closely working with others, and learning from those who had always lived with an understanding of their natural surroundings [Ali English].

Building on this type of applied program, universities such as UBC and McGill provide a final year ‘capstone’ experience that helps to integrate prior courses into an application in the real world. Again from McGill:

My final undergraduate project as part of McGill’s School of Environment involved a team project where we worked as consultants for the Montreal-based Sustainable Forestry Certification Watch, investigating the dynamics of the supply chain through interviews with buyers and suppliers. This was my first occasion of working with people from different academic backgrounds, on real problems, with actors outside of academia [Ali English].

Finally, some Canadian students who move directly into the workforce gain a practical orientation after graduating from undergraduate programs. Their prior classroom experiences led to productive jobs in the non-profit and private sectors, and provided ample field orientation toward the types of learning that were to come in the Nordic agroecology program. For example,

I have worked with a land trust called The Land Conservancy of British Columbia for the past five years and have been learning through experience. Our NGO relies on partnerships with individuals, academia, governmental bodies and interested stakeholders to accomplish our goals and objectives. These partnerships are embedded with action/experiential learning. In this organization, there has been opportunity for shared visions and experiential learning through our strategic planning process regarding TLC’s role in agriculture [Paula Hesje].

Thus, a combination of academic preparation with practical problem solving, team activities, and orientation toward real challenges in the field has been supplemented by job experience for some students before continuing for MSc study. Infusion of clarification of values related to decisions in agricultural systems is included in several educational programmes in Canada, yet have not been made explicit as a component of learning.

Experiential Learning in Agroecology

Students from Canada have found both the content of the agroecology courses in Norway and the methods of teaching to be unique in their journey through the learning landscape. The broad range of topics in production and economic analysis of farming systems has been extended to include the impacts on the local and wider environment as well as the social implications of current and potential systems. This extensive look at both farming and food systems has expanded the perspective of students who formerly had viewed development through a more narrow lens, even though this may have included experiential learning activities. Viewing challenges across a hierarchy of scale, one of the principles of ecology, was illuminating to people who want to make a difference, both locally and globally. For example,

Significant content for me was examining the food system, both local and global, and learning the associated parts and processes that comprise this complex system. Interesting discussion regarding organic vs. local, industrialization of organic farming, and the idea of a foodshed and food citizenship all engaged me in critical thinking about my local foodshed, consumption patterns, and thesis ideas, including creating a shared vision. [Paula Hesje].

Most important to me and my work are the ecological thinking/mapping and future visioning methodologies learned from our professors. Trygve Sund’s [a pioneering biodynamic farmer from Hedmark] admonishment that we should “look for the enthusiast” if we want to find out about the
sustainability of a particular food system project/business/farm; and the value of interdisciplinary assessment and analysis for strategic planning on the Holsen's family farm [Andrew McCann].

The integration of methods and perspectives from the biological and physical sciences with those of social sciences seemed especially important to students from Canada and elsewhere. This is an approach that rarely is taken in university courses, even those courses in development that are directed toward complex and often uncertain situations where an interdisciplinary approach is warranted. As expressed by one of the authors,

I think that the most important content I gained from the farming and food systems courses came in the areas of learning, soft systems methodology, and food systems analysis. Using SSM [soft systems methodology] to analyse farming and food systems was quite an exciting discovery. For the first time in school it didn’t feel like I was being asked to study a seemingly random piece of the puzzle, but rather to look at the entire “big picture” and determine which pieces were most important to zoom in on. Tools like mind mapping, using metaphors, and thinking in terms of systems all helped me re-learn the way to approach problem solving, in a manner that was at once systematic and highly creative [Ali English].

Andrew articulated the observed role of the instructors in catalyzing this adventure in learning, recognizing the guidance provided as well as the experience from prior courses in putting students into the deep water to find their own best methods to navigate the new environment. He also credits the formation of a learning community with a broad range of students from different places and cultures.

I must add that I believe that the success of an experiential learning program depends not only on well planned and organized real world work opportunities, but fundamentally on the abilities of the professors to support the experience – with timely assistance, knowledge, literature references, conflict management skills, hands-off patience, and perhaps most importantly a passion for learning with their students. [Andrew McCann].

This was echoed by Andrea in her description of the locale of the course in Norway and the mix of international students.

There were many aspects of the program in Norway that I found valuable. The international nature of the course and its participants allowed for the opportunity to gain insight into agricultural systems in various parts of the world. The chance to work with people from numerous countries added a special component to group work that increased the diversity and originality of the experience. Additionally, the sociological context of the program was a new realm for me that I enjoyed exploring. I came from a very science and ecologically based agricultural program and through my experiences in the coursework in Norway I learnt a lot about how people learn and interact with one another [Andrea Lawseth].

In these quotes it is apparent that students are delving into the values that underlie their clients decision making on the farm and in communities, as well as exploring their personal values and perspectives as they contribute to the work of the student teams.

**Higher Order Learning and Values Added through Experience**

We have argued that learning is encouraged by the practical applications of theory and skills learned in basic courses in our specific disciplines, and that dealing with people in all the complexity of their interactions with the farming and food system requires greater focus on subjective elements such as attitudes, values, morals, and ethics (Lieblein et al., 2007). Such an approach raises the stakes in education, and students find it both stimulating and daunting at times.

Working with a real farmer and a real local food system breathed life into our work. It was meaningful because we were helping shape the future visions and actions of the partners we were working with. This motivated us. It created tensions in our groups as we debated what was relevant given the specific capacities and desires of the particular farmer, family, farm and region in question. The weakness of this approach is that we were sometimes in over our heads – we struggled to respond to the agronomic, ecological, economic,
social, personal and political demands of each situation. We sometimes lacked the expertise, or the resources, to answer the questions that needed answering. But this is the way things often are in the world. We were pushed to decide what was best, given our limitations, without losing sight of the big picture, or our big dreams [Andrew McCann].

The project work carried out in both the farming and food systems courses simulated a very realistic working environment. Group dynamics were representative of what one faces in virtually any work environment. The strong focus of working as a team to discover complex solutions for even more complex situations was excellent practice for future work with environmental and agricultural issues in Canada. In addition, the exercises that were undertaken on how individuals learn were helpful in understanding group dynamics more clearly. It made for a more respectful group interaction with a better awareness of what motivates people and where strengths and weaknesses occur [Andrea Lawseth].

Others emphasized the importance of immersion in the farm and food system environment as a crucial dimension of motivation for learning. In addition to the lectures and discussions with the larger learning community, the intensity of interaction within the group situation and the dynamics this created were both a challenge and an opportunity for growth.

“Learning through doing” is the best means of learning and through this course many new ideas and approaches were embedded in my thinking due to the experiential nature of the programme. The process we went through of visioning and backcasting for a food system in a region of Norway was creative, exploratory and effective. This methodology has been used to create a shared vision for a Working Group I am involved with regarding my organization’s role in agriculture. This visioning process, and a significant portion of my work, is intertwined with what was presented about systems thinking as a process of learning. Many perspectives and subsequent complexities result from this participative process but amazing results can come from this iterative, engaged process. Creative, lateral thinking abounded and tools such as mind maps and story telling became apparent as simple, yet effective means of communicating [Paula Hesje].

There is no better way to learn than to be working within the context you’re studying, truly sensing the implications of one’s work and the possibilities brought about by one’s commitment. These were lessons I learnt while working with a farmer at Overland and the county of Vestfold. I would never have worked so hard to develop a crop rotation or analyse a farm’s nutrient cycles had I not gotten such a sense for the farmer’s dreams and real-life challenges (social and economic as well as physical). And I probably wouldn’t have found the study of food systems so dynamic and complex had I not spent several days trekking around Vestfold interviewing farmers, processors, retailers, and consumers. Nor would I have taken the assignment as seriously (and learnt so much) if I had not been working for a county representative. The outcome has been a set of skills (communication, group work, interviewing, SSM) and a “big picture” understanding that give me great confidence in my abilities to address even the most complex of problems, in a holistic and effective manner [Ali English].

Students experience the range of goals, aspirations, and plans of their clients on the farm and in rural communities as part of the project work, and the values and world views of these clients help shape the results and recommendations made by students in their final reports.

Applications in Further Study and Employment

All of the Canadian students are currently putting many of these principles and practices into real world application, either in further graduate study or out on the job. Here we provide brief summaries of how these specific applications are rooted in some of the content, methods, and attitudes gained in the agroecology courses and thesis projects. For example, Paula was working with The Land Conservancy (TLC) of British Columbia, and Andrew was working with a local food system in Ontario:

I currently work in the Agricultural Department of TLC with the responsibility of spreading awareness about the integration of agricultural and
conservation values, and the need for the protection of farmland in British Columbia. My work is incredibly collaborative and interdisciplinary. What I have learned in Norway about action learning, the participative working model, and shared visions has proved to be very beneficial in my work [Paula Hesje].

I am working in Kingston, Ontario as the co-coordinator of “Food Down the Road: Toward a Sustainable Local Food System for Kingston and Countryside”, a National Farmers Union initiated project funded by Agriculture and Agri-Food Canada, and the Ontario Ministry of Agriculture, Food, and Rural Affairs. I use the ecological thinking and mapping tools I learned at UMB – many others here have picked them up from me. I have used the future visioning methodology not only in my farm and food system work, but also as a consultant for a community health centre in Kingston. Our sustainable local food movement is being built on the kind of experiential learning and interdisciplinary teamwork I was exposed to at UMB, in no small part thanks to lessons learned there [Andrew McCann].

Applications in thesis research are obvious from the reports by four of the authors:

I am currently working on a PhD related to opportunities for Norwegian production of biodiesel from agricultural crops, on specific production issues of winter rapeseed and winter turnip, as well as a sustainability analysis of biofuels from environmental, economic, and social perspectives. Systems skills are of great use, reflecting over the current situation, analyzing the whole system, and taking steps to improve the system. As an agroecologist I see the importance of applying the new knowledge and understanding from the field and genetic levels to regional, national and global levels [Wendy Waalen].

My thesis work involves examining Food Policy Councils in North America and the functional and structural possibilities for this body in the Capital Region District on Vancouver Island. This research will integrate many aspects learned throughout the course work: participative learning, visioning, and creating preferred outcomes in a “future wanted scenario” in combination with what I learned about local food systems, and the need for food citizenship [Paula Hesje].

A thesis project on recycling animal manure and developing local food systems in Langley, B.C. has provided a large challenge of assessing opinions and evaluating potentials for the future. I have encountered many stakeholders and actors in the system whose needs require consideration. The courses in Norway have provided the skills and tools to allow me to deal with this complexity and evaluate the situation using soft systems methodology [Andrea Lawseth].

I have applied agroecological frameworks and a future visioning perspective to research on the relationship between agrobiotechnology and agroecology. I chose the potato as a vehicle/window for my in-progress thesis: “Gaugin’s Potatoes: What Happens if the Cultures of Agrobiotechnology and Ecology Intertwine?” Once my masters is complete, I would like to continue to investigate the historical and future relationship of the two internally diverse cultures of “agroecology” and “agrobiotechnology” – the two cultures driving and competing over the future of food. My approach is driven by the experiential framework I formally discovered in Norway, which is actually ancient wisdom: if you want to learn about something, become part of it, observe it, read about it, think about it, analyze it, envision it differently, change it [Andrew McCann].

These three projects clearly show the influence and the impact of agroecological methods, both biophysical and social, on the choice of research topics and methods of students in their continuing educational pursuits. There have also been direct applications of how values have informed decisions in their current jobs.

In my own life I keep bumping into the value and challenges of combining “practical” work with more “academic” pursuits. Currently I’m running a 300-member CSA market garden with two friends, while I also seem to be developing into a king of “new farmer” consultants for some local organizations. The course in As has instilled in me the importance of engaging with the food system at different levels, of seeking out the perspectives of various actors, and of using different learning preferences/methodologies to do so [Ali English].
Conclusions

As students who have participated in the agroecology courses and thesis projects, and as instructors who have read all the project documents and learner reflections over the past decade, we have found this learning environment to be especially attractive to students from Canada. It is clear to us from reading reports from over 100 students that individual values have been challenged and clarified, including attitudes toward farming and the food system, as well as toward learning. An additional “values-added” component to learning is the new-found respect for stakeholders in the field that is gained through personal interactions, the interviews and reflections that are shared by student teams and people in Norway. One student comments on how the comprehensive systems approach was especially stimulating in providing broad insight and instilling confidence to move ahead to engage with complex challenges:

*I look back on this course as the most influential educational experience I’ve had. First, because it made me realize how transformative learning can really be – when it is linked to one’s experience, when it tries to consider and engage with an entire agroecosystem, and when it is guided by teachers who are truly dedicated to their student’s learning. And secondly, because it gave me the passion and confidence to tackle some of the very complex questions surrounding food, farming, and education* [Ali English].

As instructors and students, we can summarize some of the key learning points that have been gleaned by our co-learning in this stimulating educational environment.

- There is special value in combining study of theory with practical applications, since lessons learned in the context of a farm or a local food system have special meaning to students and relevance to clients – there is obvious application of the process to people and their wellbeing.
- We have found no adequate substitute for a complete immersion in the practical farming or food system, even though there is an initial discomfort and feeling of inadequacy due to lack of all the needed skills and answers, and there is tremendous confidence after overcoming these obstacles and coming up with relevant and practical recommendations.
- Working together as teams of students presents some special challenges in the balance of workload, the different levels of English language proficiency, the variation in motivation and long-term aspirations of individuals, and the melding of unique energies and personalities to achieve a common goal; we are convinced that team building and participation with stakeholders are skills that will be essential to most job situations in the future.
- Instructors have learned to play key roles as facilitators of the student process in exploring the learning landscape, available to resolve issues of team functioning and providing needed resources, but conscious of the importance of keeping clear of the decision-making process that is essential for teams and individuals to develop.
- The multidisciplinary, multicultural, and multilingual nature of the student and faculty participants in the learning endeavor adds a vital richness and flavour to the experience that is normally unavailable in the conventional university setting; it is essential that students be recruited from different backgrounds to preserve this unique feature.

As a final conclusion, we again provide the words of a student who represents many others from Canada and elsewhere in summarizing the benefits of experiential education in the agroecology courses and thesis projects in Norway. Her own conclusions reflect the unique learning opportunity that is provided in the agroecology programme, and demonstrate why this educational activity continues to attract students from a wide range of countries and cultures, and especially those from Canada.

*Perhaps most significantly, that semester was a lifting of the learning veil. In many ways, the semester captured the richness of my farming experiences – working closely with a group of people, trying to solve real problems in all their complexity, being embedded in a new ecosystem, using all my senses. However, the project work also went beyond simply providing me with a rich environment to experience, and gave me the language and the tools to better understand the*
learning undertaken. My semester in Ås was the first time theories behind this educational approach were made explicit to me. And I found that to be absolutely fascinating. Thinking about individual learning preferences, group dynamics, Kolb’s learning cycle, and soft systems thinking gave me a new paradigm from which I was able to begin exploring learning as more than just a means to acquire knowledge, but rather as a valuable and powerful lesson in and of itself [Ali English].

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