PROTECTING FARMERS' INDIGENOUS KNOWLEDGE: ORGANIC AGRICULTURE AND ENVIRONMENTAL ADULT EDUCATION

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Abstract

Indigenous knowledge not only preserves the past, but can be vital to ensuring a sustainable future. As a form of indigenous knowledge, organic farmers' knowledge calls on old ways of farming to help inform new kinds of agriculture. Given the end of peak oil, environmental adult education has a role to play in protecting and promoting such indigenous knowledge, which is vital to individual health, community resilience, national food security and overall sustainabilty

Key words
environmental adult education, indigenous knowledge, organic farming, spiritual knowledge, sustainability.

Agriculture is the major interface between humans and the environment. For this reason, a clearer comprehension of this interface, and the role that farmers' knowledge plays in mediating this interface, are a crucial part of environmental adult education.

Writer Wendell Berry (1990) has remarked that eating is an agricultural act, a statement that simply but effectively ties together the beginning and the end of the food chain. Within the context of this paper, I will also argue that eating is a pedagogical act, capable of opening up a wide range of teaching and learning opportunities about the food we consume and its effects on human and environmental life. This paper will first look at farmers' knowledge through the Habermasian lens to understand both the forms of farmers' knowledge and the shortcomings of this theoretical framework. It will then explore the kind of knowledge that is left out – spiritual knowledge – and call for a new framework of understanding based on the concept of indigenous knowledge. Understanding organic farmers' knowledge as indigenous knowledge recognizes its importance and allows it to become a springboard for a broad-based form of education of adults that focuses on the environment. Such knowledge is vital to individual health, community resilience, national food security and overall sustainabilty.

Framing Farmers' Knowledge

Knowledge, understood as a set of shared, subjective, often taken-for-granted meanings and assumptions that are socially and historically constructed (Mezirow, 1995), is one of the hallmarks of human existence. Forbidden or otherwise, it has been central to our evolution as a species, as well as a key to power. Belenky, Clinchy, Goldberger and Tarule (1986), authors of *Women's Ways of Knowing*, remind us that our basic assumptions about the origins of knowledge shape the way we see the world and ourselves as participants in it.

Over the last several centuries, a certain form of knowledge has dominated human existence. Sometimes labelled as instrumental knowledge, this Western, scientifically based knowledge has come to be seen as the most appropriate form of knowledge for a modern world. Other forms of knowledge, such as women's knowledge, indigenous knowledge, experiential knowledge, transformative knowledge and local knowledge, have all been marginalized or excluded to a greater or lesser extent by the dominance of this instrumental knowledge, both within the academy and society at large.

In his study of knowledge and human interests, Jürgen Habermas (1978) challenged the dominance of instrumental forms of knowledge by presenting a framework that involved three knowledge domains. The first knowledge domain he called empirical/analytic knowledge, which Morrow and Torres (1995, p. 24) describe as being "based upon a desire potentially to control through the analysis of objective determinants." Instrumental knowledge fits into this category. How to calibrate a pesticide sprayer, construct a survey or train employees are all examples of empirical/analytic knowledge.

The second knowledge domain Habermas called historical-hermeneutic knowledge. This is knowledge that Morrow and Torres (1995, p. 24) describe as "based upon a desire potentially to ... understand through the interpretation of meanings." Discourse analysis, narratives and 'women's ways of knowing' are all forms of historical-hermeneutic knowledge.

The third knowledge domain he called critical-emancipatory knowledge. This involves knowledge "based upon a desire potentially to ... transform reality through the demystification of falsifying forms of consciousness" (Morrow & Torres 1995, p. 24). Transformative learning, critical reflection and liberatory praxis are all part of critical-emancipatory knowledge.

In contrast to the predominantly single focus on the first knowledge domain, Habermas (1978) argued that humans need all three kinds of knowledge. This tripartite epistemology opens the way for understanding agriculture as an instrumental activity, as a deeply experiential form of meaning making and as an emancipatory practice that can lead to sustainable ways of life.

Looking through the Habermasian lens, we can examine organic farmers' knowledge to determine whether they can be understood as participating in a three-fold form of knowledge

production or whether, like their conventional counterparts, they are losing vital forms of knowledge with the massive industrialization of agriculture, whereby many farmers become little more than instrumental 'label readers.'

Organic Farmers and Habermasian Knowledge

Organic farmers are paragons of lifelong learning. Historically dismissed as a cult, as hippies or as hobby farmers, organic farmers have long realized that their chosen vocation is neither validated nor acknowledged in the wider agricultural world. And, given that their vision of agriculture does not entail the purchase of corporate inputs such as pesticides and fertilizers, they clearly understand that no university, government or corporation will teach them how to farm – they have to learn it themselves.

In order to build a knowledge base that they can draw on and share, organic farmers have fully embraced lifelong learning, becoming both teachers and learners in their endless quest for greater understanding. Seen through the Habermasian lens, does their knowledge production move beyond the purely instrumental? During a two-year study of organic farmers in southwestern Ontario, Canada, 41 organic farmers were selected through systematic sampling and interviewed in their homes. Open-ended, informal interviews were conducted, each lasting between one and three hours. A conversational approach was employed, in order to comprehend as fully as possible their relationship to knowledge production and their commitment to lifelong learning. These interviews were complemented by participant observation at various grass-roots learning events, such as kitchen-table meetings and organic conferences. This combination of face-to-face engagement and participatory observation provides a rich picture not only of farmers' contributions to knowledge production, but also of alternative ways of knowing that challenge the unsustainability of our current techno-industrial society. The findings from this study will be used to illustrate some of the arguments in this paper.

Empirical-Analytic Knowledge

Organic farmers within the study certainly produce Habermas' first form of knowledge. All the farmers spoke about various forms of empirical-analytic knowledge, from weed control to marketing their produce. In addition, the Canadian Organic Growers (COG), a national education and networking organization for farmers, gardeners and consumers, has produced how-to manuals on organic farming that deal with both crop and livestock production. The Ecological Farmers Association of Ontario (EFAO), a volunteer group that educates farmers about ecological methods of farming, offers hands-on learning opportunities through its farm tours. And the Atlantic Canadian Organic Regional Network (ACORN) holds information sessions at its annual conference on many aspects of organics, from an introduction to organics to composting techniques. These examples all indicate a strong desire on the part of organic farmers for knowledge to control through the analysis of objective determinants.

Historical-Hermeneutic Knowledge

The study of organic farmers also reveals that they produce Habermas' second form of knowledge. Once again, all of the farmers in the study showed an interest in historical-hermeneutic forms of knowledge, discussing what organic farming meant to them, the learning process of converting to organic farming and their experiences with family and neighbours' opposition to their farming methods. In addition, the EFAO offers a mentoring program, whereby seasoned farmers offer their experience of farming to help solve problems faced by novice farmers. There are also books on what it means to farm organically, such as *Why We Do It: Organic Farmers on Farming* (Baltaz, 1998), which helps to reclaim local memories and stories. And the annual Organic Agriculture Conference offers workshops on farming experience, such as an interactive exchange on food localism. All of these examples exemplify knowledge that centres on the meaning and experience of organic farming.

Critical-Emancipatory Knowledge

Organic farmers also move beyond the first two forms of knowledge to produce Habermas' third kind of knowledge. Over 80% of the respondents had a highly developed, conscious resistance to unsustainable practices promoted by large corporations and encouraged by governments, exemplified in the words of one respondent: "multinationals are not what food, farming and life are all about." In addition, COG recently published a book on converting from conventional to organic farming, a transformational learning experience that includes the development of environmental consciousness. At the annual meeting of the EFAO in 2004, members debated the rise of industrial organics and the challenge this posed to organic farmers. And the EFAO has produced a policy statement against the spread of genetically modified organisms (GMOs). These examples point to a form of knowledge based on transforming reality.

Knowledge Aporias: What is Left Out?

While Habermas' tripartite epistemological framework has been fundamental in liberating knowledge from the strictures of instrumental approaches, it has been critiqued from several perspectives. The overall focus of these criticisms is whether the framework provides an adequate explanation of the fields of knowledge that humans are actually interested in. This study of organic farmers reveals that another kind of knowledge seems to be missing from Habermas' framework: spiritual knowledge.

Spiritual Knowledge

Spiritual knowledge is not directly associated with organized religion, and may even exist in spite of it. Different spiritualities can be distinguished according to what counts as knowledge, distinguished along three dimensions: (a) the possibility of absolute truth or multiple truths; (b) the presence of divine authorit(ies); and (c) the role of human intellect in seeking spiritual knowledge/s (Fenwick et al., 2001, 3). Many organic farmers in this study showed a great deal

of interest in spiritual knowledge. For example, both male and female organic farmers have a spiritual connection to the land. This connection is expressed in three ways: in terms of a calling or vocation, of conventional religion and of nature, the earth and the land. Spiritual knowledge is not only evident in their personal worldviews, but also in books, especially those concerned with biodynamic agriculture. Connected with the spiritual philosophy of Rudolph Steiner, biodynamic agriculture is based on the knowledge that the soil, plants, animals and humans work together in one agricultural cycle. According to Steiner's philosophy, called anthroposophy, the evolution of the capacity for knowledge in humankind has been accompanied by an increasing spirituality. Biodynamic farmers not only farm organically, but also use special preparations and take into account the cosmic influences (BLV, 1995). Spiritual knowledge is also found in conference workshops with such titles as "ecotheology and liberation theology" and "farming and spirituality: feeding the hunger for spirit and meaning."

Does spiritual knowledge fit readily into Habermas' tripartite framework? Since spirituality is connected with the search to find meaning (English, 2005, 603), spiritual knowledge could be considered a form of historical-hermeneutic knowledge. Alternatively, Tisdell (2005, 208) discusses the role of spirituality in transformative and emancipatory pedagogies in adult and higher education, which could point to spiritual knowledge as a form of critical-emancipatory knowledge. Such options reveal both the strength and weakness of working with theoretical frameworks. On the one hand, they can be powerful organizing mechanisms that reveal new patterns and perspectives. On the other hand, what they leave out can be as revealing as what they allow in, highlighting partiality and unexamined assumptions. In addition, squeezing spiritual knowledge into a Western analytic framework can distort and even instrumentalize spiritual knowledge in a way that was never intended by those who are interested in it.

Some might argue that if we wish to retain Habermas' framework, while recognizing the wide variety of knowledge and human interests, perhaps the best solution would be to consider spiritual knowledge as a fourth knowledge domain. In this way, recognition of the spiritual dimension of knowledge would augment Habermas' framework, making it more reflective of actual lived human existence. However, another organizing framework may better accommodate organic farmers' knowledge: indigenous knowledge systems.

Indigenous Knowledge Systems

Indigenous knowledge is a contested term, both in the literature and in practice. While some authors limit the term to the knowledge of indigenous people (see, for example, Colorado, 1992), others apply it in a broader context, such as farmers in developing countries (Williams and Muchena, 1991).

Anthropologist Trevor W. Purcell (1998, 260) provides a very broad definition when he describes indigenous knowledge as "the body of historically constituted (emic) knowledge instrumental in the long-term adaptation of human groups to the biophysical environment." Adult educator Julia Preece (2005, 53) is equally broad when she defines indigenous knowledge as "knowledge that people have developed over time, which has to do with their context and

immediate environment and which continues to develop." For some communities, such knowledge becomes their identity and takes on personal and spiritual meaning (Wikipedia, 2006).

A number of authors connect indigenous knowledge with local knowledge, including knowledge with respect to agriculture. For example, Gough (n.d., 2) provides the following description:

> Indigenous knowledge is the local knowledge that is unique to a culture or society. Indigenous knowledge is also known as local knowledge, folk knowledge, people's knowledge, traditional wisdom or traditional science. This knowledge is passed from generation to generation, usually by word of mouth and cultural rituals, and has been the basis for agriculture, food preparation, health care, education, conservation and the wide range of other activities that sustain a society and its environment in many parts of the world for many centuries.

While the preceding definitions do not mention specific groups of people, Brouwer (1998, 3), after considering a number of definitions, proposed a general definition that specifically includes indigenous peoples as well as other groups: "indigenous knowledge is the participants' knowledge of their temporal and social space. Indigenous knowledge as such refers not only to the knowledge of indigenous peoples, but to that of any other defined community."

Organic farmers are a clearly defined community, set apart from other farmers by the certification process they must undertake. They depend upon older forms of knowledge, such as traditional farming practices, to understand how farming was carried out before the introduction of chemical agriculture. They also depend on newer forms of knowledge, produced by both organic farmers and a fledgling number of researchers in university settings, to understand how to more fully address current, complex problems. Together, these forms of knowledge help them to mediate their interaction with the environment, thus satisfying Maturana and Varela's (1987) basic understanding of knowledge as effective action in the domain of existence.

Work by the United Nations Educational, Scientific and Cultural Organization (UNESCO) can help to confirm organic farmers' knowledge as indigenous knowledge. After analyzing a number of definitions, UNESCO (n.d.) found several interrelated aspects that appeared to be more or less specific to the nature of indigenous knowledge. These aspects were summarized as:

1. locally bound, indigenous to a specific area
2. culture- and context-specific
3. non-formal knowledge
4. orally transmitted, and generally not documented
5. dynamic and adaptive
6. holistic in nature
7. closely related to survival and subsistence for many people worldwide.

These seven aspects can form the basis for a discussion of the appropriateness of considering

organic farmers' knowledge as indigenous knowledge.

1. Locally Bound and Indigenous to a Specific Area

Within conventional agriculture, a "one-size-fits-all" mentality has been developed in order to support a commodity-based form of farming that was introduced by the pesticide and fertilizer industries. While lucrative for these multinational industries, such generic knowledge has helped to drive farmers into permanent debt, fracture rural communities by the increasing bankruptcy of family farms and pollute the environment. In contrast, organic farming looks at individual farms, and even individual sections of farms, as needing a specific set of farming practices that are not based on expensive inputs. In this way, the knowledge associated with organic farming is extremely local and very indigenous to a specific area.

2. Culture- and Context-Specific

Due to government policy that favours industrialized agriculture (dubbed "factories in the field" by McWilliams, 2000) and drives small- and medium-sized farmers off the land, farming is a dying culture in developed countries and under attack in developing countries through structural adjustment policies (SAPs). But within this dying culture, organic farming is on the upsurge through a combination of farmers being appalled by the social, economic and environmental effects of industrialized agriculture and consumers demanding unadulterated food that is grown naturally. Organic farmers' knowledge is in demand, as evidenced by the growth of farm-gate sales, community supported agriculture programs (CSAs) and farmers' markets, which become sites for local knowledge exchange.

3. Non-Formal Knowledge

Non-formal education has been defined by adult educator Griff Foley (2004, 4) as the sort of learning that occurs when people see a need for some sort of systematic instruction, but in a one-off or sporadic way. Such learning can produce non-formal knowledge, not validated by the formal education system, but important nevertheless to those involved. Most of the knowledge associated with organic farming has not been developed through the formal education system or by conventional science. It has been developed, tested, protected, passed down and expanded upon by practitioners in the field – organic farmers communicating with other organic farmers. As such, it forms a growing resource available for systematic instruction whenever it is needed.

4. Orally Transmitted, and Generally Not Documented

By far the bulk of organic farmers' knowledge is orally transmitted, through workshop presentations, mentoring programs, farm tours, kitchen-table meetings and one-on-one conversations. Only recently has such knowledge begun to be documented by the growing number of organic farming NGOs and by academics at a few universities.

5. Dynamic and Adaptive

One of the conventional arguments against organic farming is that it is not 'progressive,' and would just return us to the out-dated ways of farming. On the contrary, the knowledge that organic farmers have developed is both dynamic, in the sense that it is always changing and growing, and adaptive, in the sense that it evolves to meet altered circumstances. The strength of its dynamism and adaptability will be confirmed as world-wide resources of oil become ever scarcer. The manufacture of conventional agricultural inputs such as fertilizers and pesticides depends on fossil fuels, and organics has eschewed this kind of farming. Over time, the organic way of farming will make more and more sense in a world that is searching for alternatives to the energy-intensive global food system developed over the last 50 years.

6. Holistic in Nature

To farm organically, one must think holistically. Conventional farmers work to solve problems they cause by the kind of farming they practice. Organic farmers work to avoid problems in the first place. These are fundamentally different approaches to the interface between humans and the environment. Problem avoidance can only be achieved by thinking holistically, understanding the farm from a systems perspective, and always taking the larger environment into account.

7. Closely Related to Survival and Subsistence for Many People Worldwide

We must all eat, so agriculture is vital to human existence, no matter how urbanized we become. It also forms the basis of subsistence living for many people around the world, and these people mostly farm organically because they cannot afford the costly inputs of conventional agriculture. In developing countries, there are currently movements to return to subsistence farming as more and more people are experiencing hunger as a result of the global economy, which demands growing food for export, not for local consumption. Organic agriculture is also becoming the basis of a number of development programs, particularly in post-war areas where food production is seen as the first step in social reconstruction.

Based on these seven UNESCO criteria, it is clear that organic farmers' knowledge would qualify as indigenous knowledge. While such a designation may appear to some as appropriating the term indigenous knowledge from aboriginal peoples, the term has been recognized in the literature for over a decade as applying to other groups as well (Williams and Muchena, 1991). In addition, farmers in both developed and developing countries can be understood as having been colonized by industrial agriculture and the Green Revolution, both of which promote chemically-based agriculture over local, pre-existing forms of agriculture. As ecofeminist Vandana Shiva (1994, 152) notes, agribusiness has been effective at replacing diversity-based agricultural and forest systems with monocultures of the Green Revolution. And in an unprecedented move, farmers in Alberta, Canada, have been finding common cause with First Nations peoples in that province after realizing that they are being driven off the land by

government policy that favours industrial mega-farms, just as the First Nations peoples were driven off the land over a century ago to make room for farming (Whitson, 2001).

Overall, the body of knowledge built up by organic farmers can be labelled as an indigenous knowledge system, described by Preece (2005, 53) as being specific to a local area and belonging to a particular group of people. McClure (1989, 1, in Williams and Muchena, 1991, 53) adds to this description when he defines indigenous knowledge systems as

> learned ways of knowing and looking at the world. They have evolved from years of experience and trial-and-error problem solving by groups of people working in their environments drawing upon resources they have at hand.

Organic farmers are lifelong learners (Sumner 2005a) and "have 'learned their way out' of unsustainable farming practices and 'learned their way in' to more sustainable ways of life." Their indigenous knowledge systems have emerged from years of practice and critical reflection on how best to farm in Nature's image, using on-farm resources and not depending on costly, and destructive, purchased inputs.

In contrast, conventional farming is rapidly losing its knowledge base. The drive to industrialize agriculture has centralized farming decisions within large multinational corporations and reduced conventional farmers to technicians who read pesticide and fertilizer labels or to contract labourers on their own farms. Either way, there is no need for a system of knowledge on which to base farming decisions. Organic farming also risks becoming conventionalized and industrialized – that is, co-opted and absorbed into agribusiness as just another profitable market niche in the global corporate food system. For example, in her book *Agrarian Dreams: The Paradox of Organic Farming in California*, Julie Guthman (2004, 3) warns that organic farming in California "has replicated what it set out to oppose." Within the context of a global economy dominated by multinational corporations, organic farmers' highly developed indigenous knowledge system is under threat. This is in keeping with other indigenous knowledge systems around the world: "Today, there is a grave risk that much indigenous knowledge is being lost and, along with it, valuable knowledge about ways of living sustainably both ecologically and socially" (Gough, n.d.). If we lose organic farmers' indigenous knowledge, we will lose a great deal of our capacity to grow our own food and become vulnerable to manipulation by powerful multinational business interests that can profit from our vulnerability. The end of peak oil and the projected reduction of imported foods brought to us by increasingly expensive, oil-dependent global transportation systems make this potential loss a vital concern to questions of national food security. In order to avoid such problems, organic farmers must continue on their lifelong learning journey, protect and build their indigenous knowledge systems and encourage others to join them.

Consumers and Hidden/Forbidden Knowledge

While organic farmers have been developing their indigenous knowledge, consumers have been suffering from a knowledge deficit. The global food system, with its corporate consolidation,

long supply chains and emphasis on product rather than process, deliberately draws a veil over the food that farmers grow, preventing consumers from having full knowledge about what they purchase and eat. This obscurantism, or withholding of knowledge, is known as commodity fetishism, which Hudson and Hudson (2003) argue results in the tendency of people to

> view the commodity only in terms of the characteristics of the final product while the process through which it was created remains obscured and, therefore, unconsidered. This has crucial implications for our collective ability to see and address the ongoing processes of social and environmental destruction under capitalism (413).

As agriculture becomes more industrialized, the processes of food production result in serious negative costs that are externalized onto society and the environment: the bankruptcy of family farms, rising unemployment in the farming sector, the demise of rural communities, increased human health concerns, and environmental despoliation from elevated levels of air, water and soil pollution (Sumner, 2005b). By separating process from product, the global food system hides knowledge of these negative costs from consumers. In addition, powerful players in the global food system have been able to prevent informative labelling (such as whether a product contains GMOs), which adds to consumers' knowledge deficit. The final bill for this hidden/forbidden knowledge adds up not only to a highly compromised form of sustainability, but also to what some would describe as unsustainability. Can environmental adult education help to address problems of unsustainability?

Environmental Adult Education and Indigenous Knowledge

According to William E. Rees (2002, 250), co-founder of the concept of the ecological footprint, "unsustainability is an emergent property of the systemic interaction between techno-industrial society and the ecosphere." It follows from his reasoning that sustainability is an emergent property of the systemic interaction between another kind of society and the ecosphere. What role can environmental adult education play to hasten the arrival of this other kind of society?

As a form of education of adults, environmental adult education centres on adult learning, but with an environmental emphasis. While there is no single definition of environmental adult education, it makes concrete links between the environment and social, economic, political and cultural aspects of people's lives (Clover, 2003). As such, it can link the world's major environmental interaction – agriculture – with people's lived experience, whether on a farm or in the city. In this way, it provides a perfect forum for a wide range of adult learning opportunities.

Using an indigenous knowledge framework combined with the concept of commodity fetishism, environmental adult education can help to pull back the veil that obscures full knowledge about the food we eat, thus making the links from field to fork. By participating in such adult learning opportunities as the slow food movement, community food kitchens, food banks, farmers' markets, CSAs, healthy school lunch programs, fair/alternative trade and the organic farming movement, environmental adult educators can unveil knowledge that is deliberately hidden from

consumers – knowledge that would endanger the profit margins of large operators in the global food system. Such 'dangerous knowledge' is vital, however, to any fully functioning system of indigenous knowledge, food security and sustainability. It would link farmers' knowledge and consumer knowledge, open up opportunities for individual and collective learning, offer outlets for community activism and engagement, challenge current forms of globalization and combine learning with the development of environmental consciousness.

To address the question of environmental unsustainability, we need both a critique of our current unsustainable ways of life and a vision of more sustainable societies. Environmental adult education can help to address both issues. First, it can be considered counter-hegemonic by definition. It withdraws 'spontaneous consent' from the dominant hegemonic order, which is the first step in a liberatory process of developing an effective critique of environmental destruction. Without breaking the compulsion to believe in the status quo, there can be no transformative learning – the springboard for envisioning alternatives. Second, environmental adult education can help to build a vision of other kinds of society that are centred on environmental consciousness and dedicated to sustainability. In this way, environmental adult education can grapple with questions of unsustainability while following the emancipatory paths already laid down by many other forms of the education of adults.

Conclusion

"Environmental adult education is one framework within which adult educators can facilitate collective learning opportunities for adults around ecological concerns in order to formulate concrete responses" (Hill & Clover, 2003, 1). As such, it is a vital part of the study of the education of adults and a candidate for protecting and promoting indigenous knowledge. It engages with concerns held by many people throughout the history of the field, while at the same time making a contemporary contribution to research and knowledge production.

In the words of Morrow and Torres (1995, 23), "the human interest in knowledge is a plural one" and "the diversity of the human interest in knowing must be recognized." By supporting organic farmers' indigenous knowledge and helping to pull back the veil that obscures consumers' knowledge, environmental adult educators can provide a current and holistic analysis of eating as a pedagogical act that makes concrete links between the environment and the social, economic, political and cultural aspects of people's lives. In this way, it helps to open new pathways for the education of adults, to confirm it as a community-based enterprise, and to make it a leader in the field of sustainability because, in the end, sustainability must be learned (Sumner, 2003).

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