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TRANSFORMATIVE ENVIRONMENTAL ADULT EDUCATION:
LESSONS FROM GLOBAL SOCIAL MOVEMENTS
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This chapter draws on the previously unpublished results of the 1993-1994 Transformative Learning Through Environmental Action project (OISE, 1994) which examined the learning dimension of six environmental action campaigns in six different countries around the world all of which focused on aspects food security, preservation or consumption. These results are re-examined in the light of the goals of this book as a contribution to the growing interest in the theory and practice of environmental adult education. In addition to the background and objectives of the original study, the principles of transformative learning that were derived, practices and processes and indicators of success are explored.

BACKGROUND

The early 21st century has seen a dramatic increase in the visibility of social movement and civil society actions through the new style confrontations, i.e. at the World Trade Organizations Meeting in Seattle, the International Monetary Fund meetings in Washington D.C., and the Organization of American States meetings in Windsor, Canada. These well-organized and sophisticated interventions have heightened public and media attention to the growing role and activities of both local and global social movements and structures of civil society. Within the scholarly community of adult and lifelong learning, there has been a parallel growing interest in the relationship of learning to social movements (Welton 1993, Holford 1995, Mojab 2000) and the role of adult learning within global civil society contexts (Hall 2000, Tandon 2000). This chapter is both a contribution to our understanding of environmental adult education and to the contemporary interest in the strategic role of social movements and global civil society formations. This chapter is based on data on the Transformative Learning Through Environmental Action Project that has, until now, not been available in book or journal form. This project was undertaken between 1992 and 1994 by the Transformative Learning Centre at the Ontario Institute for Studies in Education or the University of

Toronto, the Faculty of Environmental Studies of York University and CEMINA, a Brazilian-based environmental NGO. This large scale comparative and international research project was funded by the International Development Research Centre of Canada to investigate ways in which learning emerged, and was stimulated and supported, in different environmental social movement contexts around the world. These were in Brazil, Canada, El Salvador, Germany, India, Sudan and Venezuela. Coordinated by Moema Viezzer in Brazil, Darlene Clover, Budd Hall, Edmund O'Sullivan, the late dian marino and Leesa Fawcett in Canada, the project developed as a contribution to, and a way of following up, the adult education dimensions of the Earth Summit in Rio de Janeiro in June of 1992.

The several years of networking in the international adult education community, especially in preparation for the Earth Summit raised a number of questions:

1. How could the learning dimension of the environmental movement be strengthened?
2. What can be learned from social movement environmental action campaigns about the ways in which learning takes place and can be most enhanced?
3. Which combinations of pedagogical practice hold out the most promise for transforming relations of power and perception?

The study team chose the term >transformative learning= because it is a major element of environmental adult education and other critical theories such as popular education and feminist adult education. Moreover, its very name resonates a desire for change. Transformative learning, as it was framed in this study, referred to the process of learning, whether in formal or non-formal education settings which is linked to changing the root causes of environmental destruction or damage. This includes changes in relations of power, gender relations and other patterns which allow for a healthy relationship with the earth (OISE, 1994).

Objectives of the study

The objectives of the study were to:

1. Identify indicators of success for transformative learning within environmental action contexts;
2. Undertake an international survey of transformative education initiatives;
3. Develop a number of conceptual working papers and case studies dealing concepts of transformative learning through environmental action; and
4. Organize a collaborative workshop for the analysis of how transformative learning works.

Methodology

The study was a participatory and collaborative effort by the teams at the three sponsoring organizations that brought diverse approaches and experiences in partnership with a team of scholar-activists who were responsible for writing the case study reports. For example, OISE/UT had extensive experience in adult and popular education theory; the Faculty of Environmental Studies at York University with environmental education, nature and society; while CEMINA brought experience in feminist environmental popular education.

Early in the design of the study, it was agreed that the range of experiences of transformative learning in the field of environmental action was too large and diverse to be able to provide enough points of comparison for one study. As a result, it was agreed that the case studies would be drawn from experiences of environmental action in the context of food production, distribution and consumption. Food is life itself and all social economic and political relations with nature can be understood from the point of view of food, or even, as we were to discover in the study of the Navdanya (nine seeds) project in India, from the point of view of the seed. As Leesa Fawcett (1993:5) noted in the final report of the study, Everything we put into our food, we eventually eat .

The Case Studies

The chosen case studies were action-oriented, social movement based and concerned with food and its production, consumption and distribution in some ways. Case study activist-researchers, working in the groups associated with the case study, were invited to research and write the individual case studies and to participate in the collective analysis workshop at the end of the process.

Navdanya: A Grass Roots Movement in India to Conserve Biodiversity and Sustain Food Security

The Navdanya (nine seeds) project was based in three locations in India: The Garhwal Himalaya, the Karnataka Deccan and the Western Ghats. Three local social movements were key to raising awareness and carrying out the work of Navdanya: Chipko (Garhwal Himalaya); Karnataka Rajya

Ryota Sangha (Deccan) and Appiko (Western Ghats). The project goals were to create conservation centres in each of the three areas which would in turn document existing biodiversity, collect crops for storage, select seed varieties based on yield and resilience, propagation of seed varieties, demonstrate lessons learned, and facilitate building a farmer=s based seed supply. Vanaja Ramprasad was the researcher responsible for this case study.

El Daen- Environmental Conservation in Western Sudan

The El Daen project located in southern Darfur, western Sudan was an example of a locally initiated and community-based movement to both protect nature and facilitate appropriate land and water use in a wide variety of activities. It highlighted the role of women within their community adapting to harsh environmental conditions within a framework of subsistence sustainability. The participatory learning process created a >code of behaviour= towards all living things. This code stipulates activities which are prohibited such as the cutting of large green trees, illegal hunting, use of traps, cutting trees near the water and so forth. Simultaneous work on local scientific experiments to develop ways to store seed cake indefinitely at low cost were also successful. The late Dr. Naila Babiker Hijazi was the researcher responsible for this study.

Berlin and Brandenburg as Centres of Environmental Activism: Organic Food consumption and Organic Gardening and Farming

In Germany, popular or non-formal environmental education efforts have brought about a lifestyle transformation among many Berliners. >Bioshops= (organic health food shops) have become popular around the city. Vegetarianism and eating locally grown foods from organic cooperatives is becoming more and more common. Citizen=s groups, most often spearheaded by women have lobbied governments and raised public awareness to lower speed limits within the city limits and install bike lanes and block certain city streets to automobile traffic. Elizabeth Meyer-Renschhausen has been a member of this movement and was responsible for writing up the experience.

Food, Aboriginal Ownership, Empowerment and Cultural Recovery at the Six Nations Community in Canada

At the Six Nations Aboriginal community in Canada, a local economic development and cultural recovery project has brought together Aboriginal immigrants to Canada with First Nations persons from the Six Nations Community in southern Ontario in central Canada. Their collective work has investigated traditional food crops, reintroduced many such crops to the community, and educated community members and young people about heritage foods and to produce foods for sale to the community and beyond. Jose Zarate, the project co-coordinator originally from Peru's high plateau was the researcher responsible for this case study.

Women's Citizenship in Action: The Struggle Against Hunger and Poverty and in Defence of Life in Brazil

Spearheaded by a women's network called Rede Mulher, women from slum areas of Brazil took leadership in a broad campaign to plant organic gardens near where they live, to take action on water and waste issues in their communities and to analyze the links between gender oppression and environmental destruction in their communities. Links to global issues and national movements were made explicit through popular education practices. Moema Viezzer and Teresa Moreira were both involved in the women's environmental movement and were the researchers for this study.

Transformative Learning in the Venezuelan Urban Amazon

The growing urbanisation of the Amazon is a result of the physical and economic displacement of indigenous peoples throughout the Amazon basin. As capitalist resource extraction and agri-industrial practices proliferate, millions of people have been uprooted and forced to move to live impoverished lives in the new cities of Brazil and Venezuela. This case study looked at the learning dimensions of a local movement in southern Venezuela to recuperate indigenous uses of the Amazon palm as a source of food, housing material and medicine within an urban context. Traditional indigenous knowledge is seen as a contribution to a better quality of life as well as to a recovery of pride in the traditional origins of many of the urban immigrants. Omar Vallez was both a leader of the original project and the case study writer.

People's Rights, Environmental Education and Ecological Action for Sustainability in El Salvador

The growth of social movements in El Salvador is part of the recovery process of a country that had undergone a brutal 12 year civil war where environmental degradation was a strategic part of the suppression of peasant (often indigenous) farmers. The work in this project involved rebuilding local ecosystems through popular education with local materials and in local languages. It represented the collective action of women's groups, social researchers, popular educators and the indigenous social and political leadership to begin the process of recovery as a people within a larger ecosystem. Marta Benavides was both an organizer and researcher for this project.

Collective Analysis Workshop

The data generated by a series of working papers, the case studies and the first stages of an international survey were discussed at a collective analysis workshop which brought together the case study writers, the research coordinating team and additional research assistants. The collective analysis workshop, itself a powerful example of transformative learning, placed the experiences of the environmental activists-researchers at the centre of the analysis and, through a variety of participatory research and popular education approaches, reflected on the role of learning in social movements.

WHAT WAS LEARNED?

A single chapter in a book cannot do justice to the richness of the interactions, the depth of experience shared in the project or the full sense of transformative vision which passed among the project team at several moments during collective analysis workshop. However, it is possible to provide a summary of four key themes that emerged: principles of transformative environmental adult education, practices, and indicators of success.

As Hall and Sullivan (1993) noted in their conceptual paper for the study, transformative learning, contains moments of critique, survival and creation. It is about working with a diverse set of concepts and following principles in the intentional creation of educational practices and processes. But how does learning interact with social movement contexts? What roles do the various educational approaches embedded in the day-to-day working of social movements play in

strengthening processes of action? After examining the various case study experiences, the collective analysis workshop arrived at a number of key principles which emerged from the practices themselves. These principles are a useful framework for thinking about all forms of transformative environmental adult education.

Recovery of a sense of place

The propensity to destroy the ecological balance in our communities varies, in part, according to the degree of >sense of place= which we have. . Place refers to our locations in bio-regional terms and also in terms of such social indicators as race, class, gender, sexual-orientation, and able-bodiedness. As Meyer-Renshausen (1994: 8) noted in her case study in the *Awakening Sleep Knowledge* report of linking organic vegetable growers to Berlin consumers, The members (of the food co-op) now know exactly where their cabbage comes from. As a result, we concluded that principles of bio-regionalism are important to developing a sense of place and that we need to think of ways of building practical and theoretical ways to recover our sense of place when planning learning, experiences

The importance of bio-diversity

Bio-diversity is that complex celebration of difference that allows for the flowering and survival of the world. Respect for bio-diversity means honouring space for bio-diversity to flourish. Bio-diversity performs its magic best when performing in settings that most humans understand as wild. As Vanasa Ramprasad (1994:9) noted in the case study of Navdanya, ABiodiversity is vulnerable, and left unprotected it tends to erode@. The reduction of bio-diversity in the form of fewer seed varieties, extinction of animal species or the disappearance of other life forms threatens our survival. The full implications of concepts such as bio-diversity have broad meanings even for our understanding of the roles of our particular human species. Respect for education of a transformative variety increases the visibility and understanding of the importance of bio-diversity in ways that make sense in the particular context involved. Again from Ramprasad, AConservation of biodiversity and crop varieties in-situ on farmers fields is a security imperative in the context of the North-South conflict over genetic resources@ (p. 13).

Reconnecting with the rest of nature

Our pedagogical practices, according to our understanding of transformative learning, need to seek specific ways for us to reconnect with the rest of nature. As Viezzer and Moreira (1994: 17) say in their case study of the Jardim Kaghora community in Brazil, 'It is necessary to share the joy of living without domination among human beings or between human kind and nature'. The first aspect of this is to recognise that we are part of nature and not apart from nature. We are connected with every form of life as we share the same molecular building blocks. Our collective ability to survive as a collectivity of all living beings depends on each of our species surviving in ecologically interconnected webs of life. This means that opportunities of a theoretical, practical, experiential and participatory nature need be sought so that everyone can begin to recover a sense of the natural.

Awakening Asleepy knowledge

Increasing attention is being paid to the role of indigenous knowledge, even within academic settings (Dei, Hall and Goldin-Rosenberg, 2002). The concept of 'sleepy knowledge' came from the Venezuelan Puerto Ayacucho movement for the recovery of traditional environmental knowledge to help urban indigenous migrants cope better with the new conditions facing them. As knowledges and system of thinking have come to be so dominated by Eurocentric, rich country, patriarchal paradigms, older and non-dominant forms of knowledge have been allowed to 'go to sleep'. Ovalles (1994) describes the educational process of Awakening being done in Puerto Ayacucho as:

. . . a social process through which the values, principles, knowledge, etc learned from the practices of past generations and found in the personal and collective consciousness of people are critical. These values, principles and knowledge come from the experience and relationships between societies and their natural environments throughout history. Due to the socialization process, this knowledge has been lost, and no longer transmitted from generation to generation until now. (p. 2)

In addition to the knowledges of ancient peoples, the knowledges of women and of those who live closest to subsistence have much to offer us for environmental adult education. As the keepers of seeds, primary care givers in communities, farmers, haulers of water and wood and vibrant social and environmental activists and educators world-wide, many women bring more life-centred visions and ideas to environmental discourse.

Acting and resisting

Facilitating action and supporting resistance is a key principle for transformative adult environmental learning. As Ovalles (1994: 4) says about the work in the urban Amazon, Learning becomes transformative in the moment that it starts to influence power, work, management and cultural relations. It might well be argued for example that even Western science, with its built-in biases, offers us sufficient proof of the declining health of our biosphere. But that knowledge alone cannot help us if it is not linked to social and political actions that can make changes in the laws or practices which destroy us. Resistance, itself a form of action, is that quality which allows us, as individuals and as collectivities, to maintain our sense of integrity and community thereby denying others of power over us in important ways. Transformative learning seeks out action and supports resistance.

Building alliances and relationships

In each of the examples of transformative learning which we researched, there was a strong emphasis on the importance of people working together. This is because change of a systemic nature is a long-term matter that requires skills and energies beyond any single person. Each of our cases of transformative learning involved the creation of alliances across diverse groups. In Sudan, the rural environmental association created an alliance with adult educators at the University of Khartoum. In Brazil, popular organizations of street kids, workers, women and others came together in a poverty and hunger campaign. In El Salvador, former members of the armed opposition established new alliances with peasant leaders. Transformative learning needs to find ways to strengthen our skills in working with others. It has to do with organizing, understanding difference, respecting diversity, learning how to build consensus, reaching out to those who do not share our views and with sustaining long term political and operational strategies. This may be shanty town women coming together to start a food bank. It may involve *campesinos* in El Salvador eating together or joining the Rural Leadership Network. Ovalles (1994: 4) says that in Puerto Ayacucho, each meeting they tried to make up networks of individuals and organizations which would permit continuing of the process; while in Brazil, Moema Viezzer and Teresa Moreira (1994: 9) noted that In November last year we organized a committee which has worked on three fronts all along. We established a bridge between middle-class schools and committees from middle-class apartment buildings and

committee again hunger set up by the Neighbourhood Association from Jardim Kahohara (the slum community).@ For us as environmental adult educators the question is how can we put into practice ways of learning which strengthen the building of relationships?

Skills are important too

Transformative learning is not just about understanding concepts and connections; it is also about learning and teaching specific skills. Words such as >empowerment= sometimes obscure the fact that specific skills are involved in environmental action and that learning how to do something may be as empowering as a new insight that gives broader meaning to one=s daily life. In the Six Nations of the Grand River in Canada for example, learning how to farm in the traditional way of the ancestors involves skills as well as consciousness. In the Sudan, AWomen started to exchange information in ways and means of preserving food@ (Hijazi, 1994: 10) Successful organic bio-shops in Germany requires skills in running a small business. Similarly, several skills were needed in the Navdanya project, including Acleaning and documentation of seeds, seed conservation, varietal improvement, in field agronomy trials@ (Ramprasad, 1994: 16) The challenge to those of us who work or seek to work with transformative forms of learning in these contexts is to identify the specific skills needed for the actions intended and to arrange ways to learn them.

Valuing process in learning

Many of our most unsuccessful educational experiences have focussed on trying to get the most >facts= across in the shortest period of time. In transformative learning, however, the process of the learning is as important as the content of learning. Beginning with the daily lived experiences of those involved, transformative learning calls for increased attention to the relationship of the learning processes to the overall goal of our work. As Ramprasad (1994: 18) noted:

In the Navdanya project this is referred to as evocative forms of training. Instead of trainers transferring knowledge and information as if into an empty cup, the trainer draws out the wisdom that is lying dormant within the vast range of agricultural experience that the farmer has. By doing this the active thinking is awakened within the inner life of the farmers.

Deconstructing relations of power

Learning for transformative purposes involves understanding relations of power within a specific context. Understanding relations of power helps in understanding the exploitation or abuse of nature and people in particular situations. For example, an important part of village level seed projects in the Navdanya project in India involved understanding the relations of power within the Indian state, agri-business global corporations and the sale of hybrid seeds and fertilizers. A seed conservation project would not be effective if the conservation practices were learned in the absence of any understanding such relations of power. Benevides (1994: 3) noted that in El Salvador, many farmers had to use their small plots as collateral for loans to buy seeds or fertilizer, and soon found that they lost their land as soon as they were unable to make repayments. Understanding the relations of power also allows for the potential to alter those relations and, most importantly, provides a framework for analysing future actions by agri-business interests. Power flows through each and every practice in everyday life via gender relations, race and ethnic relations, class relations and more. Sensitivity to the complex relationships of power and knowledge in ecological contexts is a goal for transformative learning.

The Practices and Processes of Transformative Learning

The collective analysis workshop process generated nearly one hundred specific practices and processes of transformative environmental adult education that had been used within the case studies. Many of the practices that formed the heart of the environmental actions under discussion had not been intentionally designed as educational practices but became key moments for very powerful learning which deepened the understanding of the actions at hand and reinforced the sustainability of the overall work. Many of the principles identified in the section above are incorporated in these practices. Two or three examples from each of these categories are used to illustrate the diversity and creativity of the practices. The practices identified include: celebrations and rituals, >on-the-spot= learning, learning from elders, community meetings, nature tours or study visits, gender analysis, medicinal plant collections, kitchen composting, marches and protests and the creation of community markets.

Celebrations and rituals

Celebrations and rituals represent an important form of environmental adult education. They have the capacity to combine new and old knowledges, spiritual and physical activities and various ways of coming closer to the earth. Meditation was also used in some of the case study contexts. In making use of celebrations and rituals for environmental education, we are drawing on some of the most powerful and ancient methods we know. The following are but two of literally thousands of such activities.

The Navdanya project in India saw transformative learning as an awakening of the spiritual faculties that slumber within the farmer. Learning is a drawing out of the wisdom lying dormant within the vast range of agricultural experience that the farmer has. One of the practices used by Navdanya was to integrate the work of identifying and preserving the best genetic stock for the coming seasons into traditional seasonal festivals. In this ceremony women played the central role as >keepers of the seeds= as they participated in an elaborate festival of song and dance that focused the entire community on the process of seed preservation. The seeds that had been selected for keeping were identified by the local farmers who elaborated their own criteria for selecting seeds based on qualities derived from their very specific contexts, including the desire to grow without imported fertilizers.

The Rural Leaders Network in El Salvador believed that their cultural, spiritual and agricultural work feeds empty stomachs, supports the community and feeds the soul. Noting that the spiritual aspect of life must not be underestimated, they made extensive use of song and music in their training programmes. They also pay particular attention to sharing traditional histories when they begin a training workshop by asking leaders from the different communities to tell the stories of their communities. These are communities with many thousands of years of history and the telling and exchanging of each story calls forth the years of resistance of the people of the region and shows common elements among them.

A number of small celebrations were also held throughout the collective analysis workshop. These culminated at the closing ceremony through collectively weaving a web of sisal twine, pausing each time to think about what our experience had meant to us.

>On-the-spot= learning

A second broad area of practice that emerged from the collective analysis process of the project was labeled >on-the-spot= learning. In India they spoke of >in situ= learning as opposed to >ex situ= learning which was compared to the practices of in situ preservation of seeds compared to ex situ preservation of seeds. It was pointed out that maintaining control of the genetic stock is being done more responsibly by the communities than by private companies.

If we think about educational work, the same thing might be said; education works best when it is kept close to the communities and suffers when it is designed at a distance by others. In all of the case studies we examined, a majority of the learning was done in the farms, homes, shops, workplaces or elsewhere that work and daily life was going on. The links between action, relevance and natural processes are so much more obvious when one is standing in the field.

An example of on-the-spot learning was identified in the Community Garden, an integral part of the project at Six Nations in Canada. When Leman Gibson, the Mohawk Elder works with the trainees at Six Nations of the Grand River near Brantford in Southern Ontario in Canada, he does so on the gently rolling land behind his home, which is one of two community gardens and test sites for growing traditional varieties of indigenous foods. His stories grow out of the land much as the corn, the squash and the beans (these three foods are known traditionally in Iroquois culture as the Athree sisters@). Whether thanking the creator directly in a prayer before working or simply through the respect he shows for the earth which brings so much each year, the trainees get spiritual, technical and philosophical learning while they work on the spot.

In Sao Paulo, Brazil, as part of the large-scale food for life campaigns of the mid-1990s, a practice of reclaiming urban space for gardens was established. Homes are small and close together in the shanty towns of urban Brazil and, while we may be used to thinking of gardens and farms as rural experiences, the women's groups in the Hunger Campaign re-appropriated urban space to create gardens for the cultivation of what they called >seeds of diversity=. In spaces that have usually been used for garbage, women have reclaimed the land for gardens where women grow different crops

and share what they grow. It is very difficult to provide security for crops in a community where hunger is prevalent, but the urban gardens provide more than just a source of food. They are at the same time a place for women to come together to figure out a variety of other ways to survive. The gardens also offer ideas about other more productive uses for the urban land that all too often becomes just another dump.

Learning from elders

To some extent all of the case studies examined had an element of learning from elders. In Germany, the urban women and men of Berlin went to some of the older organic communes in the surrounding countryside to learn from the elderly farmers. In the Six Nations agricultural project two elders, one man and one woman, are recognized as key advisers for the project and as teachers on practical farming and gardening techniques. The members of the Six Nations community could not work at a community level without the involvement of some of the elders. Similarly in the El Daen area of Sudan, the Elders (all male in this case) were at the heart of the conservation decisions and leadership.

Who are our elders in the various educational contexts that we work in?

Community meetings

Community meetings of both an informational and participatory nature were common across all the case study projects. Transformative learning made full use of the very wide variety of popular education and adult education methods in these community settings. These included cinema study groups, storytelling, cartoons, posters, community theatre, role playing, song, music and art. The Brazilian campaign, the work in El Salvador, the work in Venezuela and India all had a rich and imaginative use of participatory approaches for use in community meetings.

Nature tours or study visits

Nature can teach us much if we can learn to hear its messages and read its signs. Sometimes other species and plant life are all around us. In these cases educators need to learn to be quiet and become more open to the world around us. Sometimes in urban settings we feel distant from and apart from

the other parts of our natural world. In these cases it is useful to go to places where nature is more healthy and sustainable from an ecological point of view.

One of the study visits in Sao Paulo, involved taking the women from the shanty town to the area's water treatment plant. Here it was possible for the women to see all the chemicals put into the city water and to talk with the workers about how water becomes contaminated in the first place. The results of this visit were clearly seen when the women's group reclaimed a spring in their neighbourhood by removing all the surrounding rubbish and putting up a barrier around it so that it would be kept clean. In Berlin, urban environmental activists in search of a way to strengthen their relationship with nature began to make visits by bicycle to organic farms in both the former west and former eastern parts of Germany around Berlin. Similarly, study visits of townsfolk to villages were organized. in the Indian case study where one of the objectives is to educate the consumers of various food products

Gender analysis

Women and their lives are at the heart of transformative learning. Understanding the differential impact of environmental destruction on the lives of women is critical to being able to find a solution in most cases. In all of the case studies, women, because of their central role in food growing, food preparation, and care-giving in general were fundamental to transformation. Practices such as consciousness-raising, feminist popular education, cooking classes and other activities that simply allow women to be together outside of the very heavy load of daily work were found in most of the case studies. This means that educational practices that directly or indirectly allow for increased visibility of the roles of women, particularly among men are important.

Medicinal plant collections

Plants were used for various medicinal purposes in the x]case study projects in El Salvador, Six Nations of the Grand River, Venezuela, Germany and the Sudan. In El Salvador in particular, the growing of medicinal plants is a central part of the rural leadership work. Recovery of knowledge about medicinal plants strengthens the self-sufficiency of communities and reduces the dependence of expensive imported medicines for many common ailments. There has been a revival of such

interest in each of the countries and the active tending of such herb gardens has proven to be an excellent adult education tool.

Kitchen compost piles

In Brazil and Germany the keeping of a kitchen compost pile was an intentional part of the work of environmental activists. The use of a compost pile with its direct and visible lesson about reducing organic waste and the power of nature to nourish itself by turning waste into good soil is one of the best ways of letting nature teach us. Along with reducing our creation of rubbish, learning to recycle organic products can make a substantial difference in our communities.

Marches and protests

Environmental action takes many forms. Sometimes it is important to take collective action in order to bring certain information to the authorities involved. Marches, protests and other forms of non-violent action are powerful ways to learn about the distribution of power, the role of different kinds of knowledge and the strength that comes from acting together. Whether in India protesting the patenting of the Neem tree or in Brazil going to local authorities to provide clean water, the right to take collective action was one of the most powerful learning tools and a means of responding to unfair environmental practices available.

Creating community markets

In both the Berlin and Six Nations case studies, creating a community market was seen as an educational as well as an economic activity. Green activists in Berlin have been prevented from using plants for medicinal purposes or buying local organic produce by the large food producers and food marketing organizations that have historically had a monopoly over food distribution. The creation of local >bio-shops= where local producers can find buyers has proven to be both a functional marketing arrangement as well as an excellent place for informal education to take place. The buyers, sellers and shopkeepers educate themselves about so many issues having to do with ways to live more lightly on the earth. At Six Nations, market research at the start of the project

indicated that the community spent nearly \$11 million dollars a year for food. None of that money was spent in the community. So there were plans for an integrated community market and educational centre as part of the recovery of traditional food crops and better use of the land in the community. This centre would provide the community with films and talks about aspects of indigenous agricultural and culture as well as be a destination for visitors wanting to buy locally and learn something about the area.

Indicators of Success: Social Movement Evaluation of Learning

The concept of >indicators of success= was criticized as reflecting the language of top-down externally driven training or education by some of the participants at the workshop. But as discussion continued, participants became more comfortable with a discussion about what to look for in social movement learning contexts and agreed that, under certain circumstances, thinking through the question of longer-term goals and objectives for the learning process was valuable. It must be stressed that the specific contexts are the key to any question about success with the fundamental question being success for whom? The question of >success= needs to begin with the women, children and men whose lives are at the heart of the specific processes in question.

Nine >indicators= or ways to know how well the environmental adult education work is proceeding were identified:

- the development of new practices;
- increased participation or mobilization;
- changes in gendered roles or behaviours;
- linking between local and global contexts;
- production or recovery of knowledge;
- new legislation or policies;

- increases in self-sufficiency and bioregionalism;
- increases in cooperation; and
-
- existence of new alliances and networks

To what extent have new practices surfaced or developed? This obviously differed in each context. In Berlin, the citizen groups involved with greening the city wanted to see more bicycles being ridden on new bicycle lanes. In Sao Paulo, Brazil women wanted to reclaim land for urban gardens so the number of new gardens is an important fact. In the Indian case, farmers refusing to buy fertilizer and hybrid seeds is a new practice indicating a new awareness. In Puerto Ayacucho, Venezuela, increased uses of palm trees constitutes a new practice. Each environmental action will have potential to support new practices of very different types.

A second change worth noting relates to participation and mobilization. Mere participation is not, in and of itself, much of an indicator. However, increased participation in specific new practices or in activities based on local mobilization for change can be very important to know. In a large-scale campaign, such as the poverty and hunger Campaign in Brazil, increased participation was a critical ingredient in the overall effectiveness of the project. In village seed conservation projects, the number of families participating in the seed conservation programme was a valuable objective of the project. One could, of course, turn this indicator around and say that decreased participation in agribusiness programmes or farming practices dependent on artificial fertilizers would be the measure of success. Participation needs also to look at the question of who is participating. What is the role of indigenous peoples or women in a particular process.?

Changes in gendered roles and behaviour are a third aspect for qualitative evaluation. To what degree are women treated better than before? Do more men begin to stay in the community and help or do they continue to leave? Do boys and girls begin to share roles in more equal ways? Is there more awareness of the differential impact of toxins, pesticide poisoning, and unsafe food supplies on women and girls? Are women given support for the additional work they take on in providing energy

for environmental action projects?

A fourth indicator of success involves connections being made between local and global contexts. To what extent are people making the connection between the seed that they hold in their hands and the global struggle over ownership of genetic stock? Can people understand the link between hunger in their homes in Sao Paulo and the expansion of business interests into sugar cane production for alcohol for cars in the cities? Why are the varieties of food crop species declining? Why are traditional uses of the Palm tree being lost due to artificial substitutes? What does 25 years of war mean for the ecosystem of El Salvador.

The degree to which >sleepy knowledge= is being recovered and new knowledge produced is a fifth indicator. Our participants said one indicator of success would be when academics begin to learn from local people. We might want to add - and when local people get credit for the knowledge! Are new uses of plants revealed or rediscovered? Are new understandings of relations of power which keep change in environmental matters from changing noted? Are new ways of relating to other animals and plants learned? Are new ways of gardening, composting, preserving foods learned? Have new ways of understanding the role of non-violent action been identified? Have citizens produced new knowledge about the impact of consumerism on their own lives?

Another sixth way to judge what is happening is the degree to which new legislation and regulations that support changed environmental practices are established. Is local legislation introduced to control environmental degradation and is the legislation enforced through a court or similar bodies? Are international rules and normative statements about biodiversity enacted locally? Are new codes of behaviour based upon sustainable relationships between people and other living things being developed? Are laws regarding levels of pesticides in our food monitored and enforced? Are people=s rights to land enforced by law? Is the right to learn respected? Has the environmental action moved from practice to law?

A seventh indicator identified by the study dealt with increasing self-sufficiency and bio-regionalism. To what degree are local practices being found for local issues? To what degree are local farmers independent of global suppliers for agricultural inputs? To what degree do local

farmers supply local populations with finds? To what degree does international information available support community-based decision making? To what degree are land use issues based on the specificities of the bio-region in question. To what degree are people de-linked from the global market?

The degree to which cooperation among people in the interest of sustainable solutions to issues of food is an eighth factor. Are there new structures for cooperation over marketing, seed sharing, using traditional products, solving as yet unidentified issues? Have people=s isolation in the face of unjust environmental practices been reduced? Are individuals able to get support for struggles against landowners, unfair government regulations or other forms of oppression?

The ninth factor to take into account may be one of the most powerful. To what degree have new alliances and networks been created, encouraged or supported? To what degree are local communities able to gain solidarity or share local knowledge with others in a broader alliance? To what degree are local activists able to make use of information available on national or international networks to strengthen their own actions?

Conclusion

We have rich a rich global heritage on the role of learning in social action. We have the lessons of Gandhi-ji during the Indian Independence campaigns, of Julius Nyerere of Tanzania of the 1960s, 70s and 80s who conceived of education playing the key role in the creation of a new self-reliant African nation, and of Paulo Freire of Brazil who taught us that education is never neutral. In the late 19th Century in Europe the newly emerging social movements of labour, women=s suffrage and peace developed intentional adult learning strategies within the context of their overall movements. More recently, we have the voice of Vandana Shiva raising concerns about global capital=s attempts to patent life, itself, and of Mathew Coon Come, the National Chief of Canada=s Assembly of First Nations whose Cree First Nation in northern Quebec won a major victory over the combined interests of the state and private capital which wanted to build a hydro-electric dam on Cree land. In history as in our contemporary contexts, the learning dimension of social movement transformation has been of critical importance.

The Transformative Learning through Environmental Action project built on both these historic and contemporary dimensions. The people involved in this project followed and expanded the pathways that others have been on before. The study offers us, to my knowledge, one of the only pieces of research that is an intentional exploration of the learning dimension of six important environmental action campaigns. It brought a group of activist-intellectuals together from environmental social movement contexts in Brazil, El Salvador, India, Sudan, Canada, Germany and Venezuela. It also offers data from the case studies and the collective analysis process to help all those concerned with the growing theory and practice of environmental adult education. It tells us social movements are, among other things, about creating pedagogical spaces for adults to learn to transform their lives and the structures around them. It tells us that attending to the learning dimensions of environmental activism is a critical component in social movement strategy. It tells us that gender, place, global power and local creativity are inextricably linked in life and must be understood, worked with, challenged and celebrated as part of environmental adult education. It also tells us that far from the media and far from centres of global financial power, millions of women and men are engaged in learning and taking action each day to survive and create new relations. When the house of cards that is the global economic system tumbles down as surely it must, the seeds of a new world are already planted.

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