Developing Organizational Practices of Ecological Sustainability:
A Learning Perspective
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Purpose
This article discusses issues and strategies of developing practices of ecological sustainability in organizations. Three questions guide the discussion: How are practices of social responsibility and ecological sustainability developed and maintained in organizations? What learning in particular is involved in developing practices of ecological sustainability in organizations? How might this learning be fostered by organizational leaders?

Methodology/Approach
The article draws from literatures in ecology, ecological learning and corporate social responsibility to describe the nature of ecological sustainability, intents and approaches of organizations developing it, and their challenges. Case examples drawn from studies of small business are examined to explore successful strategies of developing practices of ecological sustainability. These examples are analysed from a learning perspective.

Findings
Challenges that hinder adoption of ecological sustainability practice include low stakeholder understanding and support, low management focus and strategy, and insufficient cost-benefit analysis. Organizations confronted these challenges by emphasizing education and enabling conditions that fostered learning in everyday action (decentralization, diversity, connections, shared focus, constraints, and feedback.)

Research implications
The discussion shifts the emphasis from corporate social responsibility (CSR) – which has become a broad, contested area of multiple meanings – to ecological sustainability, and shifts the focus from measurement and reporting (prominent in CSR literature) to learning.

Practical implications
Strategies are suggested for organizational leaders to enable conditions for learning that support practices of ecological sustainability.

Originality/value of paper
With the learning perspective, and particularly with the focus on ecological learning models based in complexity science, the article demonstrates a unique link between learning approaches and practices of ecological sustainability.

Key words: corporate social responsibility, ecology, sustainability, learning, emergence

With the growing interest in corporate social responsibility, organizations since the early 1990s have been seeking to develop practices and policies that are more ecological, sustainable and socially responsible (BSR, 2006). Yet despite prevalent business usage of 'sustainability' rhetoric, critics have argued that the overall impact has been unremarkable in achieving real goals of sustainable practice within organizations (Daley & Cobb, 1989; Dobbin, 2004; Henderson, 2002). Levels of understanding and genuine commitment to ecological ideals range widely across and within companies, as apparently does internal resistance (Hemingway and McLagan, 2004; McWilliams et al., 2006). In fact, critics such as Bakan (2004) have charged opportunism and naïveté in the rhetoric and interests of the whole corporate social responsibility movement. Yet other commentators, reporting impacts of initiatives such as the United Nation's Global Compact forum (Kell, 2003; Waddock, 2003), have claimed that organizations are indeed changing to become more ecological and ethical in practice, although practice ranges considerably in scope and intent. Clearly there is lack of consensus about the implementation of ecological practices in organizations.

This prompts the overall question addressed in this article: How *are* practices of social responsibility and ecological sustainability developed and maintained in organizations? The focus here is upon learning processes. Examples are based on studies of small businesses, which tend to be particularly vulnerable to volatile markets and globalized competition, and must struggle particularly hard to justify and implement ecological practices when profit margins may be small and survival is closely linked to the bottom line.

Drawing from existing literature as well as study findings related to implementation of such practices, this article supports the arguments of many commentators that learning and education are critical to organizational development for ecological sustainability (Korten, 1999; Lange, 2002; Nattrass & Altomare, 2002; Willard, 1995). In particular, the challenge is not only helping people to learn practices of ecological sustainability, but also to learn a particular ethical orientation to their work. That is, organizational development for ecological sustainability appears to be closely linked to a general ethical commitment to the primacy of sustainability principles shared among organizational members – a commitment that ignites and supports the implementation of such practices. The two secondary questions addressed in this article, therefore, focus on learning: What learning in particular is involved in developing practices of ecological sustainability in organizations? and, How might this learning be fostered by organizational leaders?

The discussion begins by clarifying the concept 'ecological sustainability' and outlining challenges encountered by organizations trying to implement sustainability practices, as described in existing literature. The second section presents selected findings from two studies offering contrasting examples of one large and three small organizations developing such practices: the discussion focuses on the organization's learning process and leadership roles within this process. In the third section, these examples are compared with ecological theories of learning to, finally, suggest a way forward for leaders interested in promoting ecological sustainability in organizations.

What is 'Ecological Sustainability'?

Sustainability has come to represent everything from economic development to environmental science. In the present argument, 'ecological sustainability' refers to both *social* and *environmental* responsibility, ranging from issues of human rights to viability of local communities and conservation of natural resources. Working from literatures of environmental

science, social responsibility and human ecology, Lange (2001) has developed ten principles of ecological sustainability that suggest interwoven considerations for organizational practice: (1) using renewable energy by shifting energy sources from coal, oil and gas to solar power, direct or indirect, water and wind; (2) eliminating waste from production involves taking greater responsibility for the whole life cycle of products as well as toxic effluent; (3) restoring and conserving biodiversity understands that health of societies and ecosystems rests on rich variation (Hawken, 1993); (4) adopting biomimicry using tools and technology to mimic natural processes: small scale, integrated in renewable cycles, and adaptable to the community level. All of these strive to reduce the negative impact of 'footprint' (amount of land required to produce the resources and assimilate the waste of a population) on the interdependent webs of social and biological activity: 'treading lightly'. Other principles include (5) ensuring meaningful, fairly paid work in decent conditions; (6) contributing to growth of holistic urban communities: (7) contributing to reduce cities' ecological footprint through integration of a diversity of activities and amenities in each neighborhood, (8) encouraging zero-emission industry; (9) renewing neglected and unsafe areas (Todd & Todd, 1994); and (10) incorporating restorative economy: building collective self-reliance and integrating commerce and technology into existing biological systems, focusing on the organization and local community's internal resources and bioregion.

By way of synthesis, four themes can be identified running throughout these principles. The first is an attitude: a sense of personal *ethical responsibility* for restoring healthier communities and eco-systems. The others are action: practices of *renewal* or involving minimal resources and waste in production and life activity; *interconnectivity* or acting with awareness of one's relatedness to others in local, global and biological webs and the impact of one's actions on them; and promoting *local well-being*, as nested within what Bohm (1980) calls the whole, implicate order.

Sustainability practices in organizations - CSR

An international movement that echoes some of these themes, and under which some organizations' efforts in sustainability appeared to have organised themselves, is 'corporate social responsibility' (CSR). While the issues of CSR overall tend to be broader than the concepts of ecological sustainability adopted for this discussion, the CSR movement is worth examining for the organizational practices and problems it illustrates. CSR has been defined as 'treating the stakeholders of the firm ethically or in a responsible manner' (Hopkins, 2003, p.1) by recognizing a 'triple bottom line' of these stakeholders that includes people (employees, customers, competitors, communities -local, national, global), the natural environment, and investors. Prescriptions for CSR practice tend to address wide-ranging categories: environmental sustainability; local community ecology; employees' rights; suppliers, competitors, customers' rights; transparent and honest accountability; legal and honest operations; and global citizenship (Crowther and Raymann-Bacchus, 2004; Hopkins, 2003; King, 2002).

CSR has by now accumulated its own literature and concerns, typically discussed in business and management arenas, which tend to focus on larger corporations and notions of 'corporate citizenship', measurement strategies, and balance of stakeholders' rights. According to agencies promoting CSR among businesses (CBSR, 2001 and BSR, 2006), small business owners in North America that are interested in ecological sustainability do not feel a sense of affiliation with the global CSR movement, perceiving that their unique contexts, motivations and constraints remain unaddressed by CSR models and instruments (Community Works, 2000; Stevenson, 2000).

The CSR movement is promoted largely through informal networks and alliances among business, community groups, trade unions, United Nations agencies and environmental activists. It has generated tripartite dialogues (labor, management, policy actors) about 'fair globalization', regulatory enforcement and incentives. A wide range of instruments now are circulating that articulate CSR goals, measure specific benchmarks and performance standards, and provide inspection/assessment of off-shore suppliers (e.g CERES, 2006; ILO, 2006; Verite, 2006). Willard (2005) claims that even though executives continue to respond first to 'shareholder' demands, that since the mid-1990s they are responding to powerful and urgent demands converging from green consumers, activist shareholders, nongovernmental organizations and governments. So, what are these responses? What really happens in practice in organizations that try to develop sustainability practices?

Challenges of implementing CSR and ecological sustainability

In studies reporting organizational implementation of CSR principles, three main problems appear frequently: (1) sustainability principles and rationale are little understood or appreciated below senior management levels; (2) the ideals often do not become translated into everyday practices, lacking genuine support from senior management, infrastructure, strategies, or consistency with core operational practices and reward systems; or (3) the practices are perceived too costly, difficult, time-consuming, or removed from core business goals to be worthwhile (CBSR, 2001; Nattrass & Altomare, 2002; Willard, 2005). Two additional problems noted by some authors include (4) lack of concrete government support (Bakan, 2004) and lack of stakeholder support (L'Etang, 1995). Finally, learning or the lack of it is a widespread issue according to some commentators (CBSR, 2001; Davidson & Hatt, 2005; Nattrass & Altomare, 2002; Willard, 2005). In fact, the Global Compact initiative led by the United Nations to promote CSR among organizations deliberately adopted a learning approach (Kell, 2003; Waddock, 2003).

Evidently the process of learning ecological sustainability in organizations is attended by complex challenges. At their root are top-down, episodic implementation approaches generally denounced by organizational change writers in favor of enabling continuous change through everyday organizational practices and meaning-making (Weick and Quinn, 1999). These issues suggest again that, even in organizations that genuinely aspire to ecological values, there is a learning gap. As indicated by the literature outlined here, this gap appears to involve conceptual knowledge of ecological sustainability throughout the organization and its external stakeholders, management knowledge of strategy and benefits, and practical knowledge integrated in employees' everyday action and decisions in organizational operations. But there is more: there appears to be an ethical dimension required, a development of personal responsibility to act beyond espousing ecological values, a commitment strong enough to support an organization through the inevitable challenges and uncertainties of implementing ecological sustainability.

However, studies published in forums such as the *Journal of Corporate Citizenship* reveal that organizations around the world are in fact experimenting with practices of ecological sustainability within their own contextual challenges. Some appear to be integrating principles of ethical responsibility, renewal, interconnectivity and concern for local well-being into not just their espoused values but also their work structures, employee relations practices, and interface with their suppliers and communities. This leads to the question, How, exactly, are such practices of social responsibility and ecological sustainability developed and maintained in organizations?

Possibilities for Learning Sustainability in Organizations: Hopeful Examples

The remainder of this discussion draws upon findings of two studies conducted recently to explore organizational development of ecological sustainability. This discussion does not aim to present a full research report of these studies, but to compare salient findings from them to examine the learning dimensions in implementing sustainability practices. Therefore the examination reported in this article is guided by two questions: What learning in particular is involved in developing practices of ecological sustainability in organizations? and, How might this learning be fostered by organizational leaders?

Methods

In the first study, five large companies based in Alberta, Canada and five based in Georgia, USA, all of whom proclaimed a central adherence to philosophies of CSR in their corporate literature and websites, were chosen to examine the impact of CSR and sustainability principles on their policies and practices in human resources and organizational development (Fenwick and Bierema, 2005). In-depth semi-structured interviews, audiotaped and fully transcribed, were arranged with human resource directors and general managers in these organizations. These leaders were asked to describe their understandings of corporate social responsibility, what they believed to be the most important CSR practices of the organization, the methods and challenges of implementing these practices, and the relation of these practices to the organization's operations and policies, particularly in human resource and organizational development. One of these organizations (Western Equipment Co-op -WEC, a pseudonym) appeared to have integrated CSR deeply into many of its organizational practices. In a subsequent phase of the research, a case study was conducted of WEC using methods of on-site observation, employee and customer interviews, and document analysis. Because WEC provides useful examples of leadership to encourage organizational learning of ecological sustainability, it has been selected to feature in the following discussion.

Another study was focused on small business owners and worked primarily from group interviews with owner-managers in western Canada (Fenwick and Lange, 2006). These were all small or micro-enterprises ranging in size from 1 to 11 employees, mostly in retail, business services, personal services and food service, with one in manufacturing. Potential participants were identified through snowball sampling through existing networks of organizations committed to social and environmental responsibility; businesses representing a variety of sectors that claimed to place these principles at the core of their business objectives and processes were invited into the study. One group in Vancouver and one in Edmonton, each beginning with 8 owner-managers, came together 4-6 times over a total period of two years in an action research approach where participants engage in a learning process. Participants talked together about their meanings, challenges and strategies in developing practices of ecological sustainability while surviving as a small business. Where possible, the businesses were also visited and individual in-depth interviews arranged with owner-managers to understand these practices in action. Two businesses from among those studied more in-depth have been selected to describe in the following discussion.

While the analysis in these two studies proceeded independently according to their own questions, certain resonances became evident. Among the small business owners as well as in WEC was evident a strong commitment to education and learning. Leaders emphasized the importance of educating customers and staff about ecological sustainability. They also talked explicitly about constantly promoting learning through everyday action in different aspects of organizational operation. Clearly a large organization like WEC commands more resources and institutionalizes its practices very differently than a micro-business. For these reasons a

systematic comparison of these organizations and their operations is inappropriate. However, for purposes of illustrating sustainability learning processes and leadership approaches to fostering it, the different studies offer useful illustrations in different contexts.

Sustainability integrated into the structures of a large organization

WEC is a Canadian outfitter selling gear for wilderness sports ranging from hiking/camping to kayaking. Born in 1971 from a philosophy of cooperative principles and connection to the environment by three university students, the firm grew to 10 stores nation-wide, all cooperatively owned and managed. In its literature and web presence, WEC's core business was explicitly stated to be promoting wilderness conservation, adventure and responsible use of the outdoors through quality products, which became extended in its business mission to 'improve the social and environmental impacts of our products, services and operations' through 'leadership for a just world' and 'empowering our members to be active participants in our co-op endeavors' (WEC, 2005). One manager emphasised recruitment: 'We're looking for people that are passionate about the outdoors and passionate about the environment and I think when you hire with those traits, they're usually pretty self motivated to come in and learn all they can about it' (Fenwick and Bierema, 2005). Its sustainability practices included a 'green building programme', analyzing garbage audits, enforcing a vendor and supplier code of conduct, and local store initiatives to promote local development and partnerships with community organizations.

An analysis of WEC's structures supporting its CSR learning and commitments to action identified six elements in particular. First was its *decentralization*. Local WEC stores developed their own initiatives to promote CSR projects with most interest and relevance to them and their communities. Local knowledge was important: customers and staff frequently engaged in informal meetings to provide input for decisions about products and operations.

Second was *diversity*. Staff recruitment sought diverse staff backgrounds and expertise in different outdoor pursuits (kayaking, mountain climbing, etc). Diverse partnerships were cultivated: with local groups to undertake community development projects, and with agencies such as the Canadian Cooperative Association and Outdoor Conservation Association to exchange information and identity problems.

Third was emphasis on *connections*. WEC deliberately created environments where all sorts of interactions and learning could happen spontaneously among staff, between staff and customers and suppliers, between staff and community or staff and nature. Staff took outdoor treks to 'play with' and test products. Workshops were held for one another in wilderness expertise. 'Paid project days' were available to all staff for involvement in community outreach projects of their choice. Staff focus groups assessed new suppliers (who must meet CSR standards) and determined new store directions.

Fourth was a central, *shared focus*: in WEC's case, a shared value for nature. A focus ensures a sufficient degree of overlap among the participant diversity, and enables diverse, decentralised activity and ideas to emerge while avoiding decentered scattering. For WEC, it seemed significant that the central operational value and mission explicitly focused on ethical responsibility through action – much different than a mission to become the number one outfitter in Canada. A senior manager attributed WEC's CSR success to the staff, who were 'stoked' on the focus of this organization: 'Ninety percent of the people that are there are interested, they're focused, they're asking good questions, giving great feedback and they're using the stuff, and this is what they're doing in their lives every day … they're getting out and they're actually … living the lifestyle that they're learning about' (Fenwick and Bierema, 2005).

Fifth was *constraints*. Like other small businesses, WEC had struggled to survive against competition from large corporations, to juggle multiple tasks with only a few people and to always make a little go a long way: so they were forced to be selective, focused and inventive. Thus these constraints were sufficient to enable growth without overwhelming and suffocating the organization's emerging system.

Sixth was *feedback*: frequent, multi-point communications and feedback opportunities were created among the many stakeholders of the co-op, internally and externally. On-site 'SR Coordinators', for example, worked with staff to develop social responsibility initiatives for the store's own communities, which were electronically 'tracked' and shared across stores. In these continuous interactions, new problems were identified, new ideas for SR were born, and micro-dilemmas were worked through.

What is particularly interesting is that these six elements – decentralization, diversity, connectivity, shared focus, constraints, feedback – are similar to elements that complexity scientists have shown to characterise a complex adaptive system, that is, a system that is self-organizing and sustainable precisely because it is continuously adaptive and inventive. Complexity and emergence will be elaborated further on. First, two more examples drawn from empirical study illustrate these elements at play in small businesses.

Small businesses and ecological sustainability

'Awards International', a Vancouver, Canada business employing 8 full-time staff, manufactures trophies using primarily recycled materials such as glass for all of its products. Over the past 8 years AWI reduced water consumption in their production process by 75%, and the owner was investigating further energy reduction through a firing plant that captures and reuses all heat energy. Staff worked in an open space designed for as much interaction as possible. Because the business was located in a low-income neighborhood with multiple problems (high unemployment, homelessness, etc), the business committed to hiring and training local residents as 10% of employees. Staff were active on boards of local neighborhood associations establishing safe houses, shelters, needle exchanges and community revitalization. To help green up the concrete jungle around them, AWI was planting strips of trees in the neighborhood. Their new project was building a 'green roof': planting grass on the roof to provide both natural insulation and a little park for employees and community members. Staff were involved in generating and implementing many of these ideas, working through communication with community groups. Among staff there appeared to be shared belief in the importance of principles of environmental renewal and outreach to the local community. The owner manager explained, 'Businesses can't be profit-oriented anymore. It doesn't work out. There has to be a social aspect to businesses. That will become the new standard . . . As a responsible person it's up to you to change your behavior'.

'Organix' restaurant and market in Edmonton, Canada has 11 employees and owned and managed by a young Lebanese family. Like AWI, their motives for core commitment to ecological sustainability were tied up why they started the business: to promote healthy bodies and healthy environments. Strategies for waste/garbage audit, composting, and education programmes for the public emerged through the firm's diverse networks and its emphasis on improvisational learning. Customers, said the owners, as well as staff were an important source of learning: they questioned suppliers, recipe contents, and suggested employee involvement programmes. Challenges were no less than what other small businesses experience, described earlier: high costs and balancing reasonable sustainability with viable business practices while meeting increased expectations of environmentally-aware customers and community demands.

As exemplified in the examples of WEC, AWI and Organix, the most outstanding commonality was a focus on education and learning. In particular, the learning was embodied and embedded in everyday action, a continuous experimentation fostered through certain conditions. Success in fostering this learning of ecological sustainability practices throughout these organizations appeared related to their strategies of cultivating diversity, decentralised decision-making, connectivity and an emphasis on learning, as well as a personal sense of responsibility for operating more ecologically.

Emergence and Ecological Learning – An Approach to Organizational Leadership

These elements appear to be aligned with the principles of sustainability and CSR developed by ecological writers: a sense of personal ethical responsibility for restoring healthier communities and eco-systems, practices of renewal involving minimal resources and waste, interconnectivity or acting with awareness of one's relatedness to others, and promoting local well-being in one's surrounding environments and communities (Hawken, 1993; Todd and Todd, 1994; Lange, 2001). When we return to the challenges documented in organizations trying to apply these principles to practice, a recurring theme has been that concepts often fail to penetrate the organization's operations due to lack of understanding, employee and customer buy-in, or resolution of contradictions between ecological principles and the bottom line (CBSR, 2001; L'Etang, 1995; Nattrass & Altomare, 2002; Willard, 2005). These problems are related to implementation approaches that stop at public relations activity or policies issued top-down from senior management. Recent discussions of mobilizing CSR and sustainability practices in organizations has stressed the need for much greater attention to learning (Davidson & Hatt, 2005; Kell, 2003; Waddock, 2003).

Continuous learning throughout the organization was a theme in the organizational examples described earlier. The strategies used by leaders to foster this learning are remarkably consistent with ecological models of learning derived from complexity science, the study of adaptive, self-organizing systems. From ecological and complexity theory orientations, learning is defined as expansion of capacity for 'more sophisticated, more flexible, and more creative action' (Davis, Sumara and Luce-Kepler, 2000). The focus is *emergence*: this ecological view of learning observes how complex adaptive wholes emerge from the non-linear improvisations among micro-elements of a system (Johnson, 2001). Emergence arises from processes of interconnection, recursion, renewal and self-organization.

The important task for leaders interested in promoting learning, from this ecological perspective, is to enable emergence. That is, leaders can help encourage the sorts of ongoing decentralized, creative improvisation among organizational elements that can lead to unintended but generative possibilities. This is essentially what leaders in the preceding organizational examples appeared to be doing. They began by mobilizing commitment (including attracting like-minded staff and customers) to sustainability principles, and emphasized this focus wherever possible in operations and policy-making. Then they created many opportunities for employee interaction with one another and with customers and local community organizations, and they encouraged employee experimentation with products and sustainability initiatives. These leaders valued employees', customers' and local community knowledge related to sustainability, they solicited ideas from these sources, and they encouraged questions and challenges. Hartley (2002) shows how in such organizational processes of fundamental cultural change, particularly where leaders must enable cross-organizational interconnections and partnerships, effective leadership

emphasizes responsiveness, understanding of the organization's potential impact on other organizations, and active outreach to build relationships.

Complexity science teaches that emergence requires conditions of diversity, decentralised organization, redundancy (overlap among individuals created through shared focus, language or activity), frequent opportunities for informal interaction, focus, and feedback (Fenwick, 2001; Davis and Sumara, 2005). Conditions for emergence do not necessarily occur spontaneously, but can be induced by an educator or leader. Davis et al. (2000) have been exploring approaches for educators in schools, and some of these hold applicability for organizational leaders. For example, leaders can foreground difference and its difficulties: they can even introduce difference, to disturb and unsettle what is taken-for-inevitable. Leaders can prompt frequent, informal interaction across different levels of an organization by modeling its importance, creating occasions for it, and posing questions mobilizing learners to gather. Leaders also can promote decentralised organization: different nodes of control that communicate and cooperate. Effective leaders already tend to promote feedback within a system, feedback that attends a group to healthy directions and to negative loops that threaten to kill a system. The more loops for feedback that are created, according to complexity theory, the more that parts of an organization become attuned and interconnected with one other, with their central purposes, and with external environments and organizations. Leaders can encourage individuals and units to create feedback routines for their own initiatives and everyday practices. In the organizations described earlier, these routines included informal conversation gatherings with employee and customer groups, talks with community leaders, development of outcomes indicators by employees to measure the sustainability practices valued most in the organization (such as supplier assessments, garbage audits, and customer), and regular outcomes assessment using these indicators. Overall, to enable emergence in an ecological model of organizational learning, leaders employ open-ended design but not control. They amplify difference, promote connectivity (by creating opportunities and physical spaces conducive to frequent interaction), help attune participants to their interconnections, and encourage improvisation rather than closure, while maintaining a clear focus.

Ultimately what matters is how individuals learn to attune to the people and elements surrounding them with a greater sense of connection and mutual responsibility (Davidson and Hatt, 2005). Ecological models of learning maintain that individuals learn this through participation in co-emergent systems where possibilities are always expanding (Davis and Sumara, 2005). Of particular interest to this discussion is the consonance between these conditions for emergence promoted by models of ecological learning and the characteristics noted earlier in business organizations that had successfully integrated principles of sustainability. Leaders promoting development of ecological sustainability practices throughout their organizations appeared to have enabled conditions of emergence within the organization, opening spaces and promoting everyday activities where individuals could experience the interconnection, face-to-face diversity, expansion and invention of ecological systems.

Conclusion and Implications

This article began by showing that organizational practices of ecological sustainability, as explained in both environmental literature and corporate social responsibility, can be represented by the four themes of *ethical responsibility, renewal, interconnectivity* and *local well-being*. Three central questions guided the discussion. The first was: How *are* practices of social responsibility and ecological sustainability developed and maintained in organizations? Clearly

learning and education play a central role. Here it has been argued that organizations achieving a degree of success in navigating these contradictions not only placed a central focus on personal responsibility for ecological action, but also developed two characteristics: emphasis on education, and a systemic structure of emergence (diversity, decentralization, connectivity, etc). To address the second question, 'What learning in particular is involved in developing practices of ecological sustainability in organizations?', the discussion has argued that learning occurs on various levels. Knowledge of ecological sustainability, its purposes and benefits to the organization, needs to be communicated to employees and customers, and to be clear and consistent among managers. Capacities for focusing and prioritizing ecological initiatives, for actively involving staff and stakeholders in developing and adapting everyday practices, and for implementing them throughout organizational operations, need to be generated. Strategies for classifying and prioritizing stakeholders with conflicting agendas are useful. Personal responsibility and genuine commitment to ecological action needs to be promoted at all organizational levels including management and staff.

But for organizational leaders the most relevant question might be the third: *How* might this learning be fostered? Examples from organizations reveal that leaders foster learning of ecological sustainability through modeling and communicating their commitment in everyday action, through opening opportunities and actively encouraging personal staff involvement in designing pet projects and approaches, through promoting everyday improvisation, and through creating conditions and incentives that foster diverse networks connecting staff with external stakeholders. Among employees, opportunities to instigate and take responsibility for personal projects of ecological practices appear to generate enthusiasm for learning. Focus on measurement is important, but a greater focus on everyday improvisation and adaptation appears to sustain momentum and prevent ecological practices from becoming static. Multiple opportunities for interaction on paid time acts as formal recognition that such interactions are important. Among relations with external stakeholders, active cultivation of diverse networks helps generate new ideas, questions and perspectives. In particular, the fostering of personal encounters and relationships among individual employees and representatives of community, suppliers, and clients for information sharing and response helped to generate new practices, raise useful questions, and motivate employees' commitment. Overall this discussion pointed to two main lessons for more effective organizational development of ecological sustainability practice. First, that emphasis should be placed on educating workers and customers in ways that make sense to them, within their own communities and immediate interests. Second, that sustainability is learned through everyday practice and interaction, as people share, question, tinker with and invent sustainability approaches: a phenomenon that some describe as emergence, a central part of learning in an ecological model (Davis and Sumara, 2005; Lange, 2001).

Clearly many challenges compromise efforts to incorporate practices of ecological sustainability in today's organizations trying to survive and compete in global markets, sufficient examples exist to inspire leaders and organizational developers to continue pressing for change. In small businesses enacting these four themes of sustainability, activities echo what complexity science shows to be the conditions for emergence in complex adaptive systems: promoting diversity, decentralised decision-making, connectivity, enabling constraints, feedback and learning. But beyond these conditions, a key factor is a central ethical commitment: a shared responsibility to promote ecological sustainability. Leaders alone won't convert attitudes to this

commitment, but a focus on learning can help foster understanding and active participation in sustainable practices within and among work organizations.

References

Bakan, Joel. (2004), *The Corporation: The Pathological Pursuit of Profit and Power*, Viking, Toronto.

Bohm, D. (1980), *Wholeness and the Implicate Order*, Routledge, London.

BSR (Business for Social Responsibility), (2006), Issue briefs: Business ethics, economic development and community investment, environment, governance and accountability, human rights, marketplace, workplace, retrieved January 19, 2006 from http://www.bsr.org

CBSR (Canadian Business for Social Responsibility) (2001), Government and corporate social responsibility: An overview of selected Canadian, European and International Practices. Vancouver, BC: CBSR www.cbsr.ca

CERES (Coalition for Environmentally Responsible Economies), (2006), *Global Reporting Initiative*, Retrieved on January 20 2006 from *globalreporting.org/about/brief.asp*

Clarkson, M. B. E. (1995), "A stakeholder framework for analyzing and evaluating corporate social performance", *Academy of Management Review,* Vol 24, pp. 92-117.

Community Works (2000), *It's About Time: A Report on the Desire For and Availability of Self-Employed Social Responsibility,* VanCity and Community Works, Vancouver, BC.

Crowther, D. and Murphy, R. (2002), "Social responsibility and marketing: An agenda for research", *Management Decision,* Vol 40 No 4, pp. 302-309.

Crowther, D. and Rayman-Bacchus. L. (Eds.), (2004), *Perspectives on Corporate Social Responsibility*, Ashgate, Aldershot, UK.

Daly, H.E. and Cobb Jr., J. (1989), *For the Common Good: Redirecting the Economy toward Community, the Environment and a Sustainable Future*, Beacon Press, Boston.

Davis, B and Sumara, D.J. (2006), *Complexity and Education: Inquiries into Learning, Teaching, and Research,* Lawrence Erlbaum Associates, Mahwah, NJ.

Davis, B. and Sumara, D.J. (2005), "Challenging images of knowing: complexity science and educational research", *International Journal of Qualitative Studies in Education*, Vol 18 No 3, pp. 305-321.

Davis, B., Sumara, D., and Luce-Kapler, R (2000), *Engaging Minds: Learning and Teaching in a Complex World,* Laurence Erlbaum, Mahwah, NJ.

Davidson, D.J. and Hatt, K.C. (2005), "Towards a sustainable future", in Davidson, D. and Hatt, K. C. (Eds.), *Consuming Sustainability: Critical Social Analyses of Ecological Change,* Winnipeg, Manitoba, pp. 228-244

Dhillon, G.S. (2002), *Social Responsibility in the Information Age: Issues and Controversies,* Idea Group Publishing, Hershey, PA.

Dobbin, M. (1998), *The Myth of the Good Corporate Citizen: Democracy Under the Rule of Big Business*, Stoddart, Toronto.

Fenwick, T. (2001), Work knowing on the fly: Post-corporate enterprise cultures and co-emergent epistemology. *Studies in Continuing Education, 23* (1), 243-259.

Fenwick, T. & Bierema, L. (2005), Contradictions in "corporate social responsibility": Sites for critical learning in workplaces? *Proceedings of Adult Education Research Conference*. Athens, GA: University of Georgia.

Fenwick, T. & Lange, E. (2006), Balancing contradictions: Social responsibility, work and economy. Paper presented to the *Conference of the Work and Learning Network for Research and Policy*. Edmonton: University of Alberta, October 20-21.

Hartley, J. (2002), "Leading communities: capabilities and cultures", *Leadership & Organization Development Journal*, Vol 23 No 9, pp. 419 - 429.

Hawken, P. (1993), *The Ecology of Commerce: A Declaration of Sustainability*, HarperCollins New York.

Hemingway, C. A. and Maclagan, P.W. (2004), "Managers' personal values as drivers of corporate social responsibility", *Journal of Business Ethics,* Vol 50, pp. 33–44.

Henderson, D. (2002), *Misguided Virtue: False Notions of Corporate Social Responsibility*, Institute of Economic Affairs, London.

Hopkins, M. (1998), *A Planetary Bargain: Corporate Social Responsibility Comes of Age*, MacMillan, London, UK.

Hopkins, M. (2003), *The Planetary Bargain: Corporate Social Responsibility Matters*, Earthscan, London, UK.

Husted, B. W. and de Jesus Salazar, J. (2006), "Taking Friedman seriously: Maximizing profits and social performance", *Journal of Management Studies*, Vol 43, pp. 75-91

ILO (International Labour Organisation), (2006), *Tripartite Declaration of Principles concerning Multinational Enterprises and Social Policy, r*etrieved on January 20 2006 from *http://www-ilo-mirror.cornell.edu/public/english/standards/norms/sources/mne.htm*

Johnson, S. (2001), *Emergence: The Connected Lives of Ants, Brains, Cities and Software*, Scribner, New York.

Kell, G. (2003), "The Global Compact: Origins, Operations, Progress, Challenge", *Journal of Corporate Citizenship*, Vol 11, pp. 35-49.

King, R. (2002), *Globalisation, Corporate Social Responsibility and Sustainable Development*, Centre for Sustainable & Environmental Management, London.

Korton, D. C. (1999), *The Post-Corporate World: Life After Capitalism*, Berrett-Koehler, San Francisco.

Lange, E. (2001), *Living Transformation: Beyond Midlife Crisis to Restoring Ethical Space*, Unpublished doctoral dissertation, University of Alberta, Edmonton.

L'Etang, J. (1995), "Ethical corporate social responsibility: A framework for managers", *Journal of Business Ethics,* Vol 14*, pp.* 125 – 132

McWilliams, A., Siegel, D.S., and Wright, P.M. (2006), "Corporate social responsibility: Strategic implications", *Journal of Management Studies*, Vol 43 No 1, pp. 1-18

Nattrass, B. and Altomare, M. (2002), *Dancing with the Tiger: Learning Sustainability Step by Step,* New Society Publishers, Gabriola, BC.

Stevenson, J. (2000) "Urban enterprise, entrepreneurship and economic development", *Education*, Vol 120, pp. 21-31.

Sumara, D, Laidlaw, L and Davis, B (2001) "Canadian identity and curriculum theory: an ecological, postmodern perspective", *Canadian Journal of Education,* Vol 26 No 2, pp. 144-163.

Todd, N.J. and Todd, J. (1994*), From Eco-Cities to Living Machines: Principles of Ecological Design,* North Atlantic Books, Berkeley.

Verité. (2006), *Social Accountability International*, retrieved on January 20, 2006 from http://www.verite.org/network/frameset.htm

Waddock, S. (2003), "Learning from experience: The United Nations Global Compact Learning Forum 2002", *Journal of Corporate Citizenship*, Vol 11, pp. 35-49.

Weick, K.E. and Quinn, R.E. (1999), "Organizational change and development", *Annual Review of Psychology*, Vol 50, pp. 361-86.

Whitehouse, L. (2006), "Corporate social responsibility: Views from the frontline", *Journal of Business Ethics,* Vol 63, pp. 279–296

Willard, B. (2005), *The Next Sustainability Wave: Building Boardroom Buy-in*, New Society Publishers, Gabriola, BC.