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Table of contents

List of tables

Abstract

The concept of learning has been explored implicitly at several levels, including the individual, organizational and societal. In this paper we explicitly establish the distinction between these levels of learning to study the case of a multi-party structure that aimed to use interorganizational learning to address a metaproblem. The paper relates these three levels of learning in an analysis of a case study involving multi-stakeholder processes, the Pilot Emission Reduction Trading (PERT) initiative. The initiative functioned in the province of Ontario from 1996 to 2000 with the mandate of trying to develop an emission reduction trading system and experiment with emission reduction credits trading. As our investigation demonstrates, PERT facilitated learning at the individual, organizational and societal level.

Introduction[1]

Sources of air pollution are many, from the combustion fuel used by motor vehicles and power plants, to emissions of numerous chemicals by industrial facilities. In certain regions the effects of this pollution are chronic, as well as being no respecter of the political and geographic boundaries (Beck 2002). Problems of this magnitude have been dubbed "metaproblems" (see Trist, 1983) that cannot be resolved by a single company alone any more than they can be by limited industry, governmental, or citizen initiative. Rather, because of their nature, scope, complexity and level of interdependency, metaproblems call for change at the societal level. Moreover, they require a new kind of integrative learning, often referred to as "interorganizational learning" (IOL, Knight and Pye, 2004), whereby different organizational actors resolve to collaborate for the greater good.

Collaboration for IOL has increased markedly in the past decade.Two landmark events punctuated the increase in interest. First, the *Brundtland Report* of 1987, through its advocacy of various types of multi-party structures (MPS), partnerships, multi-stakeholder forums, negotiations and collaborative planning; second, the 1992 Rio Earth Summit, a multi-party 'summit' which spawned numerous subsequent academic interventions. When an MPS is formed it brings together representatives in an interorganizational setting and establishes structures of legitimacy for organizational innovation and learning within a discourse applied to issues of sustainability, the topic of the present paper.

In the best-selling book, *The Fifth Discipline* (1990), Senge argued that fragmentary worldviews contribute to "environmental" and "existential crisis," as well as to organizational crisis

[1] We gratefully acknowledge the support of the former FCAR (now known as the FQRSC, Québec, Canada).

(Jackson, 2000). Dialogue, as sustained collective inquiry, is central to the notion of organizational learning in Senge's work, as well as in other seminal papers (see, for instance, Isaac, 1993; Beeby and Booth, 2000). Senge noted the necessity of incorporating primary stakeholders in dialogue, those whose stakes are already established, as it were. Other researchers have suggested that a larger array of stakeholders should be considered: there is a need to "bring the parties to the table, even those heretofore left behind, to generate a process of inquiry. This may be accomplished by reflective dialogues with all relevant stakeholders who, as suggested throughout this account, can take the role of the other, develop shared values, and subject their reasoning to public scrutiny" (Raelin, 2001, p. 27).

In this paper, we will present the case study of an MPS, the Pilot Emission Reduction Trading (PERT) initiative, which functioned in the province of Ontario, Canada, from 1996 to 2000, with the mandate to develop an emission reduction trading system as well as to experiment with emission reduction credits trading. As our investigation demonstrates, PERT was perceived by its members as an instance of IOL. Before presenting the case, we will set the theoretical framework by briefly reviewing some of the questions raised by two bodies of literature. The first is literature on MPS, the second, literature on organizational learning and the learning organization. In the latter, three levels of learning are distinguished – individual, organizational and social learning. The case is than described and analysed in view of these three levels of learning.

Multi-stakeholder initiatives and organizational learning as fields of theoretical inquiry

Multi-stakeholder collaborations, multi-party initiatives, partnerships or multi-logues, designated here as MPS, create a discursive arena representative of citizens, social and environmental movements, business organizations, industries and governments. MPS research has focused attention on process characteristic of collaboration, consensual decision-making, absence of hierarchy, and voluntary participation, conflict-resolution and power, as well as learning and innovation.

Early MPS research saw them as conflict resolution mechanisms (Gray, 1985; 1989; Gray and Wood, 1991; Huxham, 1001; Kelman, 1992) because they were consensus-based, even though consensus tended to be limited to general principles (Pasquero and Turcotte, 2001; Driscoll, 2006). Political scienctists to assess if a MPS truly represents power-sharing with civil society, and are often critical of performance in this respect; for instance, Driscoll (2006) looked at MPS from a legitimacy perspective and described it as merely a symbolic management device used by the industry to maintain business as usual. Rather than change the balance of power by moving from unsustainable to more sustainable networks, introducing new norms of legitimacy, pointing to learning and innovation, they were a fig-leaf. Among the outcomes expected from MPS, learning is most often cited (e.g. Driscoll 1995, 1996; Roome 1998; Turcotte and Pasquero 2001; Heugens, Van den Bosch and van Riel, 2002; Turcotte & Dancause, 2003) because it brings together many perspectives within a framework of constructive confrontation (Brown 1991).

Several types of learning have been distinguished as possible outcomes of collaborative initiatives: inspired by Argyris' (1976) typology, single and double loop learning has been distinguished (Turcotte and Pasquero, 2001) in parallel with exploitative and explorative learning (Roome and Wijen, 2005). Distinctions have

also been made about the locus of learning, with a focus on each of the individual, organizational and societal level (Heugens, Van den Bosh and Van Riel, 2002). At the societal level the idea of "triple loop" learning (Foldy & Creed, 1999) has been introduced.

Acquiring new information and integrating it into an existing perceptual framework corresponds to single loop learning (Argyris, 1976). Exploitative learning (March, 1991) entails the acquisition of new behavioral capacities framed within existing insights, as Roome & Wijen (2005: 238) put it. Single loop learning enables exploitative learning to do what is already done better. When there is a redefinition of the issues and problems, and when there is a transformation of the values driving an individual or collective's perceptual framework, the situation corresponds to double loop learning (Argyris, 1976; Foldy & Creed, 1999). Here, double loop learning is synonymous with innovation rather than learning to do the same thing better. Driscoll (1996) notes the transformation that occurs in the cognitive framework of participants involved in an MPS, where double-loop learning developed at the individual level. Poncelet (2001) also observed personal transformations happening, including participants developing new understandings of the issues at stake. When triple-loop learning occurs something additional happens; as actors change their guiding principles they challenge and re-frame the rules of the game in which they have been engaged – they introduce a new game or different interpretations of the rules – and thus are associated with innovation at the societal level (Foldy & Creed, 1999: 214).

Heugens et al. (2002) show that stakeholders involved in a collaborative approach create both organizational and societal learning, which provided competitive advantage for the participating organizations. Other case studies of MPS have observed frequent single-loop learning at the individual level, as well as double-loop learning at the organizational level, and incremental triple-loop learning, often in the form of changes in language games and the insertion of new webs of relationships.

Typically such learning tends to be more explorative and less exploitative, thus being difficult to implement (Turcotte & Pasquero, 2001; Turcotte & Dancause, 2002; Driscoll, 2006). However, many factors, including the structure of the collaborative initiative, might determine the potential for learning. Roome and Wijen (2005) found that open structures are conducive to explorative learning while the alignment of interest among participants and the formalization of routines are necessary for exploitative learning.

Weick (1991: 122) deplored that "efforts to grasp the phenomenon of organizational learning have mixed together change, learning, and adaptation, with only casual attention to levels of analysis and to referents for the activity itself." Knight and Pye (2004: 473) make a similar observation concerning IOL, suggesting that "the term is used to refer variously to learning by individuals, groups, organizations and strategic networks". Some attempts have been made to sort out levels: Lipshitz (2000: 7) established that the distinction between individual and organizational learning was superficial "inasmuch as the former can be adequately described as a cognitive process, whereas the latter is essentially a process of social interaction." In a comparative case study, Lipshitz and Popper (2000) demonstrated that organizational learning mechanisms could influence the process of organizational learning.The focused on factors such as team reviews, joint efforts to solve problems and, to a lesser extent, consultation of formalized knowledge such as academic reference material, as well as organizational culture. Antanacopoulo (2006: 456) sees a need to explore the "interconnectivity between levels of learning" and to ask how learning at the individual and organizational levels interacts. This is one of the questions the present paper will try to answer, while adding a third level, that of the societal level.

The circulation of knowledge is an important precondition for organizational learning to occur. Lipshitz and Popper (2000) found out that learning was rarely transferred outside the

boundaries of the small groups in which it was generated. By contrast, Nonaka and Takeuchi (1997) presented many exemplary cases where learning developed in small groups and was then diffused throughout the organization. However, as the authors specified, such diffusion is possible only in specific circumstances. Clegg (1999) explained that to be transformed into organizational learning, individual learning must be standardized and commodified (portability dimension), as well as received culturally, politically or existentially by the organization (embeddedness dimension). New ideas and knowledge, as they travel, are received, rejected, redefined, resisted or accepted to become part of the cultural sensibility of a specific organization (Gherardi and Nicolini, 2000). Or, as Tenkasi formulates the process, "[k]nowledge requires contextual modification to be adopted in the new context; and that effective contextual adaptation warrants a creative synthesis of different cultural and meaning systems to produce new knowledge" (Tenkasi, 2000, p.74).

Due to the high degree of stakeholder interdependency and the fact MPS are usually only established to negotiate complex issue, interorganizational structures designed for addressing metaproblems can effectively circulate knowledge to upper-levels of the respective management teams. Complex problems, multiple stakeholders, and a process of deliberative decision-making see relationally powerful actors come into play. In such circumstances, the transfer of knowledge can be expected to cascade from the elite individuals participating in the multi-stakeholder initiative to the organizations represented there, and, finally, to larger industry sectors and societal structures (Pasquero, 1991). Poncelet's (2001), account of social learning sees it occurring whenever participants gain new knowledge and understandings by virtue of their contact and interactions with other social actors. One constant among the description of learning at the societal level is that the more relationally powerful the actors are, in terms of their nodality in circuits of power in organizations, industries, communities and regions, the greater

the opportunities for implementing learning – with the corollary that the learning will be harder to translate into concerted action if interests remain vested rather than negotiated (Clegg 1989). Political science scholars, in particular, provide definitions of social learning that associate it with policy changes and, more generally, with governance. Social learning approaches to policy analysis explore how policymakers attempt to adjust the goals or techniques of policy, and, in this perspective, a policy change is an indicator of learning (Greener, 2002). Social learning encompasses the activity of public policymakers, as well as promoters and other players in civil society, in setting the rules of the game (Williams, 2000).

In summary, the brief review of the literature directs us to the following research questions: to what extent are MPS's conducive to learning and at what level(s) – individual, organizational, societal – is that learning most likely to occur? What is the relation between these levels of learning? What kind of knowledge –single-loop and exploitative, double-loop and explorative, triple-loop that is incremental or radical, is most likely to emerge? What factors and learning mechanisms trigger the learning that occurs?

Investigating PERT's experience: methodology

The primary goal of the research was to reach a more comprehensive understanding of learning as it occurred throughout the collaborative processes of MPS that we investigated. The methodological design is consistent with the requirements for a case study (see Yin, 1994), and accords with the call of organizational learning observers and contributors for more empirical investigations and, in particular, case studies (see Easterby-Smith et al., 1999; Leroy, 1998).

The case focused on here is the Pilot Emissions Reduction Trading Program (PERT), which was launched in 1996 in Ontario

by a group of industry representatives. Gradually, it brought together representatives of some environmental NGOs and, eventually, governmental agencies. The investigation of PERT's collaborative process draws information from diverse sources and relies on several types of data. Data collection was done mainly through documentary analysis, and complemented with interviews as well as, to a lesser extent, participant observation. The document analysis was based mainly on information available on PERT's and Clean Air Canada Inc's (CACI) websites since 2001, as well as minutes of the Executive Committee and Working Group meetings. The data represents more than 300 pages of documents, which provided rich information to write a first draft of the case narrative (Czarniawska, 1998), on the basis of which questions were formulated for structured interviews with PERT members.

The interview schedule of questions pertained to the process and its outcomes, especially related to consensus and learning outcomes. Interviews were conducted with twelve individuals; three represented the energy-producing industry, three consultant services, three were drawn from environmental non-governmental organizations (NGOs), with one each coming from the provincial and federal governments, and one from the PERT Secretariat. At least one third of the interviewees had participated in PERT's launching, while two interviewees had less than two years experience. After refining the standard questionnaire in few face-to-face interviews, telephone interviews were conducted with the rest of the selected participants and were tape-recorded and then transcribed. The average time for an interview was one hour and ten minutes. In addition, one of the regular monthly Working Group meetings was attended to gather "first hand" information about the dynamics of a regular Working Group meeting, its setting, and stakeholders' attendance, participation, and dialogue.

The empirical data gathered from the meeting minutes, other relevant documents, interviews and observation indicated the

major organizational and substantive issues discussed in PERT. On this basis, a deliberation issues "tree" was constructed, and five issues discussed among the participants were isolated as units of analysis, related to:

1) Governing the collaborative process
2) Membership management
3) Communication
4) Developing an emission reduction trading system
5) Experimenting with emission reduction credit creation.

Utilizing the *HyperResearch* computer program, files were produced on each unit of analysis containing selected excerpts of the coded text. Where the data was representing an issue with particular significance for PERT (such as governance of the collaborative process or trading system creation and implementation), each unit of analysis was analyzed from two perspectives: first, chronologically (how PERT's position on the issue evolved), and, second, with regard to the outcomes produced (consensus, learning, and innovation). The detailed reports on each unit of analysis provided a sound basis for the current analysis of learning in PERT at the individual, organizational and social levels to provide deeper insight into PERT's collaborative dynamics.

PERT's case

Emission Reduction Trading is simple in principle: it occurs whenever a source of air pollution reduces its emissions and ownership of the emission reductions is transferred to another party. For example, if a company responsible for the release of air pollutants is required to reduce these emissions by a certain date, it has to make a capital investment for this purpose. The amount of the investment depends on the type of pollutant(s), the size of the company, the nature of its process and many other

factors, which can be a significant deterrent to effective and early action. Another company, by virtue of its size, process type or financial disposition, may be able to make reductions at a lower unit cost. It is therefore in a position to make further reductions, which can be sold to a company facing financial constraints, for which the cost of buying the credits is lower than the cost of investing in new equipment or systems.

PERT was established in early 1996 as a self-funded, non-profit organization managed by a multi-stakeholder Working Group and supervised by an Executive Committee. PERT was an industry-based initiative, but the Working Group included members from governments, environmental and health groups. Nonetheless, most of the financial support for the project came from the industry and association members. PERT's brief history is described in Table I. In 1997, NGOs were invited to join PERT's Working Group. Initially, there were twenty-four stakeholder organizations in PERT. By the end of 1999, PERT already had forty active members: sixteen members from industry, eleven from government, eight consultants and five from non-governmental organizations.

Table 1 - PERT's Short History

YEAR	DEVELOPMENTS
Late 1960s	University of Toronto Professor John Dales introduced the concept of Emissions Reduction Trading (ERT)
1980s 1990s (early)	Implementation of credit-trading initiatives on a regional basis in the U.S. ◆ The Canadian Council of Ministers of the Environment, Environment Canada, the Ontario Ministries of Energy and the Environment, and Ontario Hydro undertake studies on emission trading ◆ The Ontario Government does not intend to include ERT in its environmental policy at the time
1994	A group of Ontario industry representatives formed an informal, voluntary association called the Industry NOx & VOC Emission Reduction Trading Workgroup (NOx & VOC Workgroup)
1995	The Industry NOx & VOC Workgroup released a discussion paper that contained a draft framework for emission reduction trading in the Windsor-Quebec corridor (and bordering air sheds), and proposed a demonstration project
1996	The Pilot Emissions Reduction Trading Program (PERT) is launched by the Industry NOx and VOC Workgroup
1997	◆ Creation of PERT's Design Team with the mandate to develop Draft Trading Rules ◆ NGOs are invited to join PERT ◆ Recruitment membership (applicants) campaign ◆ Nine credit creation protocols were reviewed; five of these were listed on C.A.A.C Registry

1998
- The Design Team presents the *Draft Rules* to the Working Group and after several rounds of discussion, the *Draft Trading Rules* are published on PERT's website for comments
- The Ontario Ministry of the Environment Ontario recognizes PERT by co-signing a *Letter of Understanding*
- The Executive Committee reviews the original PERT objectives: from learning to informing policymakers about the emission reduction trading tools

1999
- New task to investigate the implementation options for different types of ERT systems
  - Financial experts are invited to inform PERT's members
  - Survey of PERT members
- Intensification of relationships with the Ontario Ministry of the Environment
  - Submission of a discussion paper on Emissions Trading System Implementation Options to the Ontario MOE
  - The MOE representative takes a stand on the *Draft Rules* and the minister meets PERT members with regard to the *Options Paper*
  - The Working Group targets the MOE for participation in PERT
- The number of applicants increases, creating a division of opinions among PERT's members:
  - Is the multi-stakeholder character jeopardized in practice?
  - Shouldn't PERT consider only cases with learning potential?
- Creation of a team to assess the effectiveness of

	the Protocol Review Process
2000	◆ The Protocol Review Process is formalized as a ten-step process - Shorter turnaround time - Greater consistency in applications, reviews, and summary reports
	◆ A Challenge Process Review Team is created in reaction to two challenges from companies
	◆ PERT's *Lessons Learned* is published
	◆ The Ontario government incorporates ERT in its environmental policy
	◆ Pollution Probe, an Ontario environmental NGO, leaves PERT
	◆ PERT concludes its activities in September (official conclusion in 2001) and the Clean Air Canada Corporation takes over its activities
2001	◆ The Ontario Government announced its clean-air plan for industry
2002	◆ The ERT system is incorporated in Ontario's new emission limits

The consensus-based decision-making process benefited from the fusion of different expertise and views on the emission reduction trading concept. Thus, the industry members strived to keep the process simple and applicable to the broadest range of situations possible. For the government representatives**,** the Pilot Project provided an opportunity to explore the emission reductions trading approach without committing either to endorsing or opposing the policy tool. Similarly, the NGOs were eager to understand its strengths and weaknesses, while also wanting neither prematurely to endorse nor oppose the approach. Their major concerns related to the achievement of certain environmental objectives: verifying reductions and

preventing direct or indirect adverse environmental or health impacts as a result of trading.

From the outset, PERT's activity was channelled into two principle tasks. First, the conceptual development of an open-market emission reductions trading system was the primary goal of the working group. For that end, a set of trading rules was established and the implementation capacities of alternative types of trading systems were explored. Second, emission reduction credit creation activity was conducted at the same time (the *learning-by-doing* principle), in order constantly to test the conceptual elements in practice and thus improve them. A full length description of the case can be obtained through the first author. We will now present the results of the case in terms of learning that occurred at the individual, organizational and societal level.

PERT created a Design Issues Team in early 1997 to identify and address the key trading issues and integrate them into a design framework. The Trading System Design Team was led by the representative of the U.S. Clean Air Action Corporation (CAAC), who was the only PERT member to have had previous experience with similar projects. In fact, instead of inventing a completely new trading mechanism, PERT members first educated themselves in the field of ERT and then struck a balance between the merits of the existing (U.S.) emission reductions trading systems and the policy particularities of the Ontario environmental scene.

Encouraged by the successful completion of the first major collaborative task (*PERT Draft Trading Rules*), in January 1999 the group decided to investigate what the implementation options for different types of ERT systems were. In that case, PERT reached out to financial consultants and invited them to inform the stakeholders on the merits of the different options.

From the start, efforts were made to document and formalize the knowledge produced by PERT. Documented “lessons learned” were perceived as the principal outcome of PERT’s activities. Thus, the Executive Committee defined PERT, in 1998, as a group, which “should focus on reporting *what has been learned at PERT* and offer a final report summarizing their [stakeholders’] findings.” A year later, the Executive Committee broadened the Project’s learning mandate from, simply, “informing policy makers” to “educating proponents on potential trades” (ECMM, December 13, 1999).

PERT’s chances for influencing the provincial policymakers increased in 1998, after a *Letter of Understanding* was signed with the Ontario MOE. Thus, in 1999, a MOE representative took a stand on PERT's *Draft Rules* and the Minister met with PERT's members with regard to the *Options Paper.* The exploration of different emission reductions trading models in PERT was interlinked with the second major PERT activity: creating emission reduction credits and conducting an evaluation review process (hence, the *learning-by-doing* operational principle).
As a result of the province’s new emission limits, the number of credit creation applicants increased drastically in the mid-1999. How to deal with the situation became a contentious issue: whether PERT would review all new applications or select a few according to their learning potential. Ultimately, PERT adopted the position that it should consider only cases from which it was most likely to learn.

The year 2000 was PERT’s final year as an informal multi-stakeholder environmental initiative. It coincided with the beginning of the Ontario Government’s comprehensive clean-air plan. That year, PERT published its “Lessons learned" document. This was considered an important achievement as it formalized the knowledge developed and accumulated over several years by the multi-stakeholder group. PERT also faced new difficulties The Pilot Project’s decisions were challenged by two companies, the result of a value-clash between business

interests of efficiency and PERT's learning objective. Furthermore, one environmental NGO, Pollution Probe, left the process after disagreeing with the winning business rationale over the constitutive learning objectives, leaving the multi-stakeholder ratio imbalanced.

In March 2001, the Ontario government introduced a discussion paper on emissions reduction trading and proposed reducing air pollution from the Ontario Power Generation's six fossil-fuel plants by requiring emissions reductions of nitrogen oxides by 53 per cent and sulphur dioxide by 25 per cent from current limits. The draft regulation was presented to the public as incorporating the "lessons learned" from the PERT experience.
Starting January 1, 2002, the new ERT system was introduced in the province by setting new emission limits (caps), which force emitters to reduce air pollution generated by their operations. PERT lessons had been institutionalised.

Learning in PERT

Learning at the individual level

At the individual level, the opportunity to learn about emission reduction trading which PERT provided was the strongest motivating force for stakeholders to join the Project. As our interviews demonstrated, learning was consciously pursued by the individual participants, precisely because it was perceived as an important "stake." Acquiring expertise in ERT was seen by the participants as potentially leading to a competitive advantage. PERT's members saw themselves as pioneers in the emission reduction trade, and were eager to learn. Becoming an "expert" in the field meant a new livelihood for some stakeholders (in consulting, for instance) or an opportunity to acquire greater professionalism. Conversely, NGO representatives saw involvement in PERT as necessary in order to develop informed opinions on the issues discussed as well as to learn how to "ask

better questions," and "pay attention and be careful for people trying to slip something through" in the credit creation process (interview). Overall, the stakeholders perceived that to become knowledgeable in emission reduction trading was a strategic goal and an empowering experience. In short, participation in the PERT process was especially conducive to individual learning. While PERT multi-stakeholder membership led to networking competencies, its organizational learning mechanisms, such as the creation of a learning-by-doing environment, contributed to the development of technical expertise. An energy-production specialist confided in the interview, "when I came [to PERT], I knew virtually nothing more than the pedestrian knowledge of environmental issues… My learning curve [of environmental and trading issues] was exponential…I've learned a lot!" (Interview).

Learning at the organizational level

Learning could also be observed at the organizational level, where several organizational learning mechanisms were constructed and successfully managed (see Table II). PERT's mandate mainly concerned experimenting and learning, and the participants perceived the Pilot Project as a learning organization. Learning was, indeed, one of the constitutive dynamics of PERT, permeating every dimension of its activity, and consciously pursued as an objective of the collaborative process. For instance, emission reduction credit creation protocols were selected for review on the basis of their potential to contribute to learning. As the MOE representative reflected on this point,

> The whole purpose of it (PERT), from the beginning, was to be formed for learning, and they (the stakeholders) are constantly reminding each other of that. In fact, that is the fallback position. When… there is a disagreement on a particular course of action, then, the question they resort to

is, 'Will this compliment the learning experience?' If it does, then, that resolves the disagreement." (interview)]

Table 2 - Organizational Learning Mechanisms in PERT

- Mandates pertaining to learning:
  - to learn
  - to formalize the learning
  - to inform others
- Principle of sharing expertise
  - multi-stakeholder ratio
  - incorporation of external expertise
  - incorporation of external experiences and other studies
- Learning-by-doing environment
- Organizational structure conducive to learning:
  - creation of specific task teams
  - distribution of the knowledge development and formalization tasks among the units
  - efficient communication between the units[i]

Learning was constantly formalized. The objective of accumulating "lessons learned" and intensifying learning guided PERT's management of the collaborative process. It was the participants' mission to invent designs, implement solutions, and then draw "lessons learned" from that experience. The writing of "lessons learned" became an important organizational learning mechanism, which served to formalize the knowledge and eventually provided it with a portability dimension (Clegg, 1999), when the goal to "inform" other groups and the government, in particular, is considered.

As should be expected from a multi-stakeholder initiative, one of the main organizational learning mechanisms in PERT had to do with the principle of shared expertise. The diversity of expertise in PERT was constantly targeted to increase learning potential in the collaborative process. In general, the participants brought a broad range of expertise in environmental protection, industrial polluting, free trading, and environmental policy creation to PERT which they shared in the collaborative process. Constant efforts were made by the participants to achieve a particular membership ratio in the Working Group, as well as in each specific credit creation review team. Furthermore, whenever significant knowledge gaps were detected in the group, expertise was sought outside the Project (especially on legal issues, such as the "challenge process" or PERT's liability). Thus, PERT incorporated any relevant external expertise/experience.

PERT provided a good setting for the participants' goal of acquiring expertise, as it was designed as a learning-by-doing environment. Participation in task teams and review teams was especially valued by the members, because these structural units offered the opportunity to gain in-depth knowledge on the complexities of defining emission reduction credits (who owns the credits, for instance) or of methods to create credits as applied in different industries and diverse trades.

Another important organizational learning mechanism in PERT pertained to the Pilot Project's organizational structure, which made possible a certain division of labor – a functional distribution of the knowledge-accumulation efforts – in PERT. To be more efficient, the flow of learning was directed through levels of exploration, beginning with protocol review teams and task teams, going through the Working Group, and ending with the Executive Committee.

Learning at the societal level

At the societal level, the main objective of PERT's mandate was to facilitate learning about emission reduction trading. The pilot project was created as an industry-led, self-mandated collaborative group with the explicit goals of exploring and evaluating the emission reduction trading concept as a viable environmental policy tool, and designing an effective mechanism for trading emission reduction credits in Ontario. In fact, PERT was the energy-production industry's response to the shifting policy environment in North America. It was not until the mid-1999s that the provincial regulator expressed a clear intention to adopt emission reduction trading as an environmental policy approach. PERT's mandate was justified in terms of helping the provincial government to comply with both the electricity production sector restructuring in North America, and, later, the Kyoto Protocol's requirements (1997).

The industry representatives perceived the existing expertise-vacuum as an opportunity to influence environmental policy development in Ontario by both "producing knowledge" about the emission reduction trading system and "creating demand" for it. PERT's functional principle of learning-by-doing was able effectively to fuse these two objectives. As a result, an emission reduction trading mechanism was created to demonstrate the feasibility of the project in terms of satisfying the requirements of a cost-effective policy tool, and "lessons learned" were incorporated in reports viewed as drafts for a future provincial legislation.

Producing a "lessons learned" document was considered to be "of greatest priority" (Working Group Meeting Minutes – WGMM, January 13, 2000). There was a consensus among the participants that the focus of the document should be "on the experience of creating and trading reduction credits, rather than on issues of establishing and running a trading mechanism (PERT's operational structure)" (WGMM, February 17, 2000).

As a knowledge-creating site, PERT apparently fulfilled its mission of positively influencing the provincial regulator to adopt the emission reduction trading concept as a policy approach. By attributing a constitutive role to learning in the collaborative process, the stakeholders succeeded in establishing PERT (and now CACI) as an expertise-based authority in the emerging field of emission reduction trading.

In previous case studies on multi-stakeholder initiatives (Turcotte and Pasquero, 2001) social learning – in the form of influencing other social actors' predispositions to change – was observed only indirectly and to a limited extent. The situation was different with PERT. PERT functioned as a voluntary group that was trying to develop a tool that essentially complemented the provincial environmental policy. The political institutional framework of Ontario meant that PERT had an ambiguous role to play. The Ontario government's lack of a clear position on the parameters of the designed trading system created an atmosphere of uncertainty. Thus, PERT had to struggle hard to define its position as an obligatory passage point, an uncertainty which obliged the pilot program constantly to adjust its mandate to the changing regulative environment. At the same time, given the diverse nature of the PERT membership, and its shifting parameters, the external policy uncertainties created a situation that was used by different PERT members to define and promote their interests and, ultimately, influence the regulator's decisions. Hence, PERT provided a conduit marked by one important unifying factor – they all flowed through the market as an institution. PERT involved market-based mechanisms and, as such, its proposals enjoyed considerable legitimacy with the government in power in the province. Thus, the influence on the provincial government was palpable. Three elements certainly contributed to this success. The first was PERT's use of several organizational learning mechanisms, and particularly the constant efforts to formalize the knowledge, which helped increase its "portability" (Clegg, 1999). The second was the embeddedness dimension (Clegg, 1999), that is, the extent to

which the learning was easily received by the recipient organization. The third element was the legitimacy of the options that it voiced: these were all expressed in terms of market mechanisms that had great symbolic value for the politicians running the government and the direction that they gave to the provincial government.

Conclusion

The results contribute to the field of organizational learning by distinguishing and showing the dynamic relationships between three levels of learning: individual, organizational, and societal. PERT's creation marked the first attempt in Canada to evaluate emission reduction trading as a tool to assist in the reduction of smog and other air pollutants. As the above analysis demonstrates, in this particular MPS learning appeared as a constitutive principal and agreed-upon primary goal that could be detected at three levels. On the individual level, perceived as an important stake by PERT members, learning was consciously pursued by the participants. From a personal point of view, PERT was preparing the stakeholders for the future regulative regime in the province, when emission trading would be an integral part of environmental public policy. In the interviews conducted, the unique opportunity to become an expert in emission trading was underscored as the principal motivating factor for joining the Pilot. On the organizational level, "lessons learned" were formulated and several organizational learning mechanisms were present to intensify the learning process. The various organizational learning mechanisms put in place to achieve these results have been described and included mandates pertaining to learning, implementation of the principle of sharing expertise, a learning-by-doing environment, and an organizational structure conducive to learning. PERT was perceived by its members as a learning organization providing primarily benign learning opportunities for individuals, which fostered the influence of this multi-stakeholder organization on its social environment and, particularly, on one important stakeholder – the provincial government. At the societal level, on the basis of accumulated knowledge, public policies were induced and legislation was developed.

Overall, learning in PERT was attributed a constitutive role in relation to the collaborative process, which created an

environment of trust and mutual understanding among the stakeholders. As a result, expertise on substantive (related to emission reduction trading) and organizational issues was shared and accumulated in the group, and recommendations on a new environmental regulation based on “lessons-learned” were directed to the provincial government.

Increasing the collaborative processes learning potential was a constant concern in PERT. Numerous examples occurred of organizational learning mechanisms being mobilized to enrich, intensify, or diversify the stakeholders’ learning experience. Gradually, these opportunities transformed into a systematically applied (although, not explicitly stated) policy of directing/managing the learning process. The management of learning followed a systematic path of expertise building: from the detailed designing of a particular type of trading system – open market model – to developing a full range of trading-system options, to mastering a working emission reduction credit market.

PERT's case tells a story about a series of attempts to adapt concepts and practice to a particular situation. It illustrates that policy learning in practice does not concern the straightforward transfer of ideas or techniques but their adaptation to local circumstances (Greener, 2002; Czarniawaska and Sevon 2006). Learning is always a struggle between the interpretation of ideas on a terrain that favours some rather than others. In the case of PERT, the terrain was systematically shaped by the institutions of the market, and what shaped the participants individual learning was the desire to be able to operate effectively in this institution as an actor with a stake in environmental management. Learning about a market instrument to solve an environmental problem and introducing it in the context of a market economy can be interpreted as doing better what the society already does. It is thus a case of exploitative learning, that is acquiring new capacities within the existing frame, but it does not bring about radical change – which resulted in a lost of interest for the environmental NGO that left. In the spirit of radical

reformism (Orsatto and Clegg, 2005), further research might want to assess what it would take to achieve learning that would be implemented (exploitative) and which was more radical at the societal level, by demonstrating exploratory possibilities hitherto not conceived.

Finally, PERT provides a case in point for the socio-technical approach to learning. According to the socio-technical paradigm, " knowing and learning are seen as collective accomplishments residing in heterogeneous networks of relationships between the social and the material world which do not respect formal organizational boundaries" (Araujo, 1998, p. 317). In this regard, the case has shown that by creating links between organizations and sectors, a multi-stakeholder initiative may provide an opportunity that is particularly conducive to learning. As a legitimate type of structure – bearing an aura of inclusiveness, as well as being an arena for learning – MCP might also make the knowledge more portable (Clegg, 1989) from one network to another, and from the organizational to the societal level. Further research needs to investigate how knowledge developed by actors at the level of an organization or an IOL can be translated into legitimacy and acceptance at the societal level.

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