Implementing the ecological approach in tobacco control programs: results of a case study

Lucie Richarda,b,*, Pascale Lehouxb,c, Éric Bretona,b, Jean-Louis Denisb,c, Louise Labried, Claudine Léonarde

a Faculty of Nursing, Université de Montréal, P.O. Box 6128, Station Centre-ville, Montreal, Qué., Canada
b GRIS (Interdisciplinary Health Research Group), Université de Montréal, Montreal, Que., Canada
c Department of Health Administration, Université de Montréal, Montreal, Que., Canada
d Public Health Department, Régie régionale de la santé et des services sociaux de Montréal-Centre (Montreal-Centre Regional Health and Social Services Board), Montreal, Que., Canada
e Public Health, Planning, and Evaluation Department, Régie régionale de la santé et des services sociaux de la Montérégie (Montérégie Regional Health and Social Services Board), Montreal, Que., Canada

Abstract

The ‘new public health’ has stimulated calls to adopt an ecological approach for action aimed at improving population health. However, the implementation of ecological programs has often remained a challenge. The objective of this study was to identify factors facilitating the implementation of ecological tobacco control programming in two Public Health Departments in Québec (Canada) using Scheirer’s model of program implementation as a conceptual framework and an exemplary case study design. Analysis revealed two distinct configurations of environmental, organizational and professional characteristics that were related to equally successful implementations of the framework. Key roles for factors such as provincial ministerial guidelines and financial resources, human resources, and relationships and alliances with other organizations, were highlighted. These results replicate findings from quantitative surveys and allow better understanding of the conditions required for planning ecological programming.

Keywords: Ecological approach; Health promotion; Tobacco control; Public health planning; Public health units; Program evaluation

Over the last 15 years, a number of political and scientific organizations as well as public health analysts have pleaded for the adoption of the ecological approach to support more effective interventions aimed at maintaining and promoting the health of populations (Green & Kreuter, 1999; McLeroy, Bibeau, Steckler, & Glanz, 1988; Stokols, 1992; World Health Organisation, Health and Welfare Canada, and Canadian Public Health Association, 1986). As one of the central axes of the new public health (Schwab & Syme, 1997) and of the contemporary health promotion movement (Green, Poland, & Rootman, 2000), the ecological approach emphasizes action on a broad range of health determinants. Although many contributions in the literature on the ecological approach have concentrated on defining the concept and identifying its components (Green, Richard, & Potvin, 1996; McLeroy et al., 1988; Simons-Morton, Simons-Morton, Parcel, & Bunker, 1988; Stokols, 1992), guidelines for program planning (Bartholomew, Parcel, & Kok, 1998; McLeroy, Steckler, Goodman, & Burdine, 1992; Stokols, 1996) and evaluation (Richard, Potvin, Kishchuk, Prlic, & Green, 1996) have also been developed. In professional practice, examples of ecological programs (Emmons, 2000) and applications of the approach to a variety of health contexts have been described: nutrition, tobacco control, physical activity, diabetes (Gauvin, Lévesque, & Richard, 2001; Glanz & Mullis, 1988; Glasgow et al., 1999; Peterson et al., 2002; Richard, Potvin, Denis, & Kishchuk, 2002). Planners and practitioners have been urged to use this approach by implementing programs that integrate person-focused efforts to modify health behaviors with
environment-focused interventions to enhance physical, political and socio-cultural surroundings.

Despite this enthusiasm, the extent to which the ecological approach has penetrated the practice of public health is still often questioned (Beaglehole & Bonita, 1998; Clark & McLeroy, 1998; McKinlay, 1993; McLeroy, Norton, Kegler, Burdine, & Sumaya, 2003; Sallis & Syme, 2000). For example, following a detailed analysis of intervention strategies used in behavior modification programs for six health behaviors, Orleans, Gruman, Umer, Emont and Hollendonner (1999, p. 75) concluded, “more progress has been made in ‘downstream’ individually oriented treatments than in broader, more environmentally focused interventions”. Others have drawn similar conclusions (Aguirre-Molina & Gorman, 1996; McKinlay, 1993, 1995; Meek, 1993; Merzel & D’Affliti, 2003).

In the context of tobacco control, there is widespread agreement that effective action requires a comprehensive, ecological intervention approach that targets multiple systems and employs multiple strategies (Aguirre-Molina & Gorman, 1996; Altman & Jackson, 1998). However, there are still concerns that practitioners confine themselves to the traditional domain of health education and favor individual targets of intervention over environmental interventions (Altman & Jackson, 1998; Elder, Edwards, & Conway, 1997). Our recent analysis of tobacco control programs implemented by Canadian public health organizations confirm that these concerns are warranted. Although these programs no longer had an exclusively intrapersonal focus and often included action directed towards interpersonal and organizational environments, community and political environments were seldom targeted (Richard, Gauvin, Potvin, Denis, & Kishchuk, 2002).

Clearly, it seems that designing and implementing ecological programs remains a challenge. The complexity of the approach and the intersectoral collaboration and costs involved in its operationalization are often offered as explanations for this situation (Eakin, Cava, & Smith, 2001; Freudenberg et al., 1995; McLeroy et al., 2003; Sallis, Bauman, & Pratt, 1998). In response, research has begun to assess how, and how well, organizations have integrated the ecological approach. Certain factors associated with its successful implementation have been identified through an analysis of existing programming. Practices are more likely to be ecological when professionals are knowledgeable about health promotion interventions, hold beliefs that are consistent with the ecological approach, and are more highly qualified (Holden, Strazza Moore, & Holliday, 1998; Lévesque, Richard, & Potvin, 2000; Richard, Gauvin, et al., 2002). Furthermore, ecological programs are more likely to be managed by multidisciplinary teams and to be found in large cities and in organizations where professionals have more frequent contacts and collaborations with external partners (Richard, Gauvin, et al., 2002; Riley, Taylor, & Elliott, 2001).

Although the identification of correlates of the level of integration of the ecological approach can help suggest ways to encourage its implementation in the field, more in-depth analyses may be required to increase our understanding of the mechanisms operating among these correlates. The present study aims to contribute to this understanding by examining more closely the conditions associated with the successful integration of the ecological approach in the tobacco control programs of public health organizations, extending our previous work (Richard, Gauvin, et al., 2002; Richard, Potvin, et al., 2002).

1. Conceptual framework

Scheirer’s framework on program implementation (Roberts-Gray & Scheirer, 1988; Scheirer, 1981, 1987, 1994) guided this study. Integrating many theoretical perspectives (organizational development, political and psychological), this framework has been successfully used to study program implementation in fields such as mental health (Scheirer, 1981) and dental health (Scheirer, 1990).

Scheirer defines the organization as an open system, influenced by the larger social system of which it is an integral component. The organizational system is composed of different subsystems (work teams, individuals, etc.). Implementing an innovation in an organization involves the organizational context as a whole, including its external environment. Indeed, “a major hypothesis is that the extent of implementation is likely to be higher when there is a greater degree of congruence between the nature of the program or innovation being attempted and the characteristics of the organizational environment involved” (Scheirer, 1987, p. 69). Following Scheirer, our conceptual framework included 12 propositions about three levels of organizational analysis: macro, intermediate, and micro.

1.1. The macro level

This level involves analysis from a political perspective of the role of actors and institutions who, although not directly involved in the innovation implementation process, affect the organization and the program team as a whole and whose support is essential to ensure successful implementation. At the macro level of analysis, it was posited that the implementation of the ecological approach in the tobacco control programs of public health departments would be facilitated by a high level of coherence between the approach and:

(a) influences from the community environment
(b) influences from the political/legislative environment
(c) broader organizational influences affecting the program team (organizational mission, regional priorities, support by staff at the public health unit for the ecological approach in tobacco control programming).
1.2. The intermediate level

This level of analysis focuses on the organizational unit involved in the implementation process, in this case the tobacco control team, from an organizational perspective. It examines the coherence between the innovation to be implemented and the tobacco control team’s structures, processes, and norms. The propositions from Scheirer’s model at this level state that the implementation of the ecological approach will be facilitated by a high level of coherence between it and:

(a) the tobacco control team’s level of resources
(b) the tobacco control team’s experience with ecological interventions
(c) the work organization within the team (planning process, collaborations with other units in the organization)
(d) continuing training opportunities for team members
(e) the level of collaboration with extra-organizational partners
(f) the level of support from the tobacco control unit’s supervisor
(g) the norms within the team.

1.3. The micro level

The micro level of analysis focuses on the characteristics of the professionals responsible for implementing the innovation. It uses a psychological analytical perspective to examine the proposition that the implementation of the ecological approach would be facilitated to the extent that it is coherent with:

(a) the background and experience of the tobacco control team’s professionals;
(b) the attitudes and beliefs of the tobacco control team’s professionals.

2. Methods

2.1. Context

In Canada, health services are constitutionally under provincial jurisdiction. However, most provincial governments, including Québec, have recently devolved decision-making for health services planning and delivery as well as resource allocation to the regional (equivalent to county) level (Shah, 1998). In 1994, the province of Québec created 18 regional health and social service boards with mandates that included the provision of health promotion and disease prevention services to the population through Public Health Departments, created by merging the 32 existing Community Health Departments. These Public Health Departments are responsible for a variety of measures outlined in the Public Health Act, including organizing public information and awareness campaigns, promoting and supporting preventive health care practices among health care professionals, establishing mechanisms providing for inter-sectoral action, promoting the adoption of social policies capable of fostering the enhancement of the health and welfare of the population, etc. (Public Health Act, 2001). Public Health Departments are required to coordinate their efforts with other agencies involved in this field (e.g. local community health centers).

Also in 1994, the Québec Ministry of Health and Social Services launched an ambitious action plan to tackle the smoking problem in the province (Ministère de la santé et des services sociaux, 1994). Supported by a budget of Can$20 million, this plan included four main strategies—prevention, health protection, cessation and surveillance/evaluation—and emphasized youth and low-income populations. While encouraging collaboration with community partners in the development and implementation of interventions, this plan also clearly called for the adoption of a global, ecological approach to tobacco control, including action on a variety of environmental and personal determinants of smoking initiation and maintenance. The Ministry charged the newly created Public Health Departments with translating this action plan into concrete programs and interventions. This has provided a rich environment for investigating the factors that influence the integration of the ecological approach in tobacco control programming.

2.2. Design

An exemplary case study design was used. This design involves the in-depth analysis of cases showing ‘strong and positive examples of the phenomenon of interest’ (Yin, 1993, p. 32). The cases were two exemplary public health units with high levels of implementation of the ecological approach in their tobacco control programming. More specifically, we used a retrospective longitudinal design and delimited the study period between 1995 \( t_0 \), when the first financial resources from the ministerial action plan were allocated to the Public Health Departments and 1997 \( t_1 \), the time at which the level of implementation of the ecological approach in the tobacco control programming for these organizations was assessed (see below). Our strategy was to document the influences of Scheirer’s postulated factors for the study period \( t_0 - t_1 \) in order to find an explanation for the level of implementation found at \( t_1 \).

Given the extensive fieldwork required, feasibility considerations limited the choice of exemplary organizations to the five public health units located within a 100 km radius of Montréal. The selection of organizations
showing high levels of integration of the ecological approach in their tobacco control programming was made using criteria developed through work we have conducted over the last 10 years on assessing the ecological approach in health promotion programs. Briefly, in line with existing theoretical analyses (Green & Kreuter, 1999; McLeroy et al., 1988; Simons-Morton et al., 1988), our conceptual definition of the ecological approach includes intervention settings, targets, and strategies as key dimensions, so that programs are considered to be more consistent with the ecological approach when they integrate environmental and individual targets of intervention across a variety of settings, using multiple strategies. An ordinal five-point scale derived from this definition is used to classify programs according to their level of implementation of the ecological approach (A detailed rationale for the model and accompanying analytical procedure is available in Richard et al. (1996); for applications, see Gauvin et al. (2001), Richard, Gauvin, et al. (2002) and Williamson (in press).

In the present study, data from a large survey of the implementation of the ecological approach in tobacco programs in Canadian public health organizations (Richard, Potvin, et al., 2002) were updated to locate exemplary organizations. Of the five public health departments located in the eligible area of Quebec, two had maximum scores on our five-point scale of integration of the ecological approach in their tobacco control programming. These two organizations were also different from other organizations in the province because of their higher levels of tobacco control activity. The Site 1 unit services a population of about 1.8 million, distributed across an area of about 500 km². This population lives in suburban and urban environments in or around a large metropolitan area. The percentage of regular smokers in the general population is 29%. The Site 2 unit services a population of about 1.3 million, distributed over an area of about 11,000 km². This large region includes urban, suburban, and rural areas. The percentage of regular smokers in the general population is 30%.

2.3. Procedure

Data related to Scheirer’s propositions were collected from two sources: a documents review and interviews. Documents reviewed included annual reports, action plans, and so forth. Thirty interviews in total were conducted at the two sites. A first group of respondents included tobacco control team professionals \(n=15\) and middle and senior managers \(n=5\) working in the selected organizations. A second group included respondents from outside these organizations: representatives of community organizations involved in the tobacco teams’ programming (e.g. local health departments, charities, etc. \(n=6\)) as well as representatives of relevant provincial organizations (e.g. Provincial Committee for Tobacco Control, NGOs, etc. \(n=4\)). The mean duration of these interviews was 90 min. The interview guides and document review templates were based on Scheirer’s framework. For each factor in the framework, respondents were asked to describe the situation at \(t_0\) and \(t_1\), as well as the nature of any changes in the factor over that period. Interview and documentary data were collected in 1998.

2.4. Analysis

A case study methodology was used to analyze the data. The first step involved an independent analysis of each site, where we categorized the data according to the themes included in Scheirer’s propositions. Additional themes emerging from the data were also identified. Following a detailed analysis of this material, a series of statements was prepared to describe the situation for each of these themes at both sites. The coding was conducted independently by two members of the research team (LR and EB) and reviewed in detail by a third member (PL). Based on these statements, descriptive narratives of the situation in each site were prepared and validated by their respective tobacco control teams. The second step involved the empirical testing of Scheirer’s propositions using a pattern-matching logic. To maximize the validity of the procedure, we built a chain of evidence (Yin, 1994) that involved the careful specification of each step in our reasoning and included detailed references to the dataset for each of these steps. Feedback from the tobacco control teams was sought on two occasions during this process, and the preliminary version of the final report was discussed with both.

3. Results

3.1. Factors facilitating the integration of the ecological approach in programming according to Scheirer’s model

Table 1 presents factors found to facilitate the integration of the ecological approach in the programming for each site. A detailed description of these factors for Site 1 and Site 2 is presented below.

3.1.1. Site 1

At the time of the study period, the Site 1 Public Health Department was composed of about 300 professionals distributed in five administrative units, each corresponding to a major health determinant. The tobacco control team was located in a unit devoted to lifestyle, targeting issues such as tobacco use, nutrition, and physical activity. Professionals acting alone or in collaboration with colleagues were in charge of the intervention projects that made up the tobacco

<table>
<thead>
<tr>
<th>Site 1</th>
<th>Site 2</th>
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<tbody>
<tr>
<td>Inclusion of tobacco control professionals in the ecological approach</td>
<td>Inclusion of tobacco control professionals in the ecological approach</td>
</tr>
<tr>
<td>Integration of environmental and individual targets of intervention</td>
<td>Integration of environmental and individual targets of intervention</td>
</tr>
<tr>
<td>Use of multiple strategies</td>
<td>Use of multiple strategies</td>
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control programming of the unit. Each professional in the unit reported administratively to the lifestyle unit manager, and one professional acted as the liaison for the tobacco control program to the same unit manager. As detailed in Breton, Richard, Lehoux, Labrie, and Léonard (2004) and confirming the survey data, Site 1 programming included many components related to a variety of intervention targets (individual, interpersonal, organizational, and political), strategies, and settings (school, health care organization, community, etc.).

Table 1
Elements facilitating the integration of the ecological approach into programming according to Scheirer, sites 1 and 2

<table>
<thead>
<tr>
<th>Site 1</th>
<th>Site 2</th>
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<tbody>
<tr>
<td><strong>I. Macro</strong></td>
<td><strong>II. Intermediate</strong></td>
</tr>
<tr>
<td><strong>Community environment</strong></td>
<td><strong>Resources</strong></td>
</tr>
<tr>
<td>Public opinion in favor of tobacco control</td>
<td>Special ministerial budget for the recruitment of tobacco professionals and the building of alliances/partnerships with community partners</td>
</tr>
<tr>
<td>interventions</td>
<td>Special ministerial budget for the recruitment of tobacco professionals and the building of alliances/partnerships with community partners</td>
</tr>
<tr>
<td>Many partners interested in tobacco control</td>
<td>Special budgets for specific tobacco control projects</td>
</tr>
<tr>
<td>issues</td>
<td>Special budgets for specific tobacco control projects</td>
</tr>
<tr>
<td></td>
<td>Close relationships with partners in a vast and diversified network</td>
</tr>
<tr>
<td></td>
<td>Human resources with long and diversified experience in tobacco control</td>
</tr>
<tr>
<td><strong>Legislative/political environment</strong></td>
<td><strong>Work organization process</strong></td>
</tr>
<tr>
<td>A legislative environment and a law adoption context favoring the implementation of tobacco control interventions</td>
<td>The ministerial action plan underlying the planning processa</td>
</tr>
<tr>
<td>Tobacco given a top priority at the provincial level</td>
<td>A new team but members with long experience in ecological tobacco control interventions</td>
</tr>
<tr>
<td>Special ministerial budget devoted to tobacco control interventions</td>
<td>A post-merger context facilitating the diversification of intervention targets and strategies</td>
</tr>
<tr>
<td>Ecological approach underlying the ministerial action plan</td>
<td><strong>Collaboration with external partners</strong></td>
</tr>
<tr>
<td>Political will of public health stakeholders</td>
<td>Many partners involved in the tobacco control programming</td>
</tr>
<tr>
<td><strong>Organizational environment</strong></td>
<td><strong>Support from the supervisor</strong></td>
</tr>
<tr>
<td>Ecological approach underlying the mission statement</td>
<td>A supervisor highly supportive of the ecological approach in tobacco control interventions</td>
</tr>
<tr>
<td></td>
<td><strong>Team norms</strong></td>
</tr>
<tr>
<td></td>
<td>Norms in favor of the ecological approach</td>
</tr>
<tr>
<td><strong>II. Intermediate</strong></td>
<td><strong>Training and experience</strong></td>
</tr>
<tr>
<td><strong>Resources</strong></td>
<td>Professionals highly educated in disciplines relevant to the ecological approach</td>
</tr>
<tr>
<td>Special ministerial budget for the recruitment of tobacco professionals and the building of alliances/partnerships with community partners</td>
<td>Professionals with long experience in tobacco control, on a variety of intervention targets and settings</td>
</tr>
<tr>
<td>Special budgets for specific tobacco control projectsb</td>
<td><strong>Attitudes and beliefs</strong></td>
</tr>
<tr>
<td>Close relationships with partners in a vast and diversified network</td>
<td>Attitudes and beliefs consistent with the ecological approach</td>
</tr>
<tr>
<td>Human resources with long and diversified experience in tobacco control</td>
<td><strong>Attitudes and beliefs</strong></td>
</tr>
<tr>
<td></td>
<td>Attitudes and beliefs consistent with the ecological approach</td>
</tr>
</tbody>
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*a* The establishment of alliances is particularly important at Site 2.

*b* Obtaining research funds is particularly marked at Site 1.

*c* The planning process appears much less formalized at Site 1 than at Site 2.

*d* A highly formalized planning process including many mechanisms to ensure that actions plans are followed.
3.1.1.1. The macro level. According to key informants and documentary data about the period $t_0 - t_1$, the Site 1 population appeared generally concerned by the increase of smoking rates among youth and interested in finding solutions to this problem, despite the presence of some negative attitudes in the population about tobacco control. The presence of many community partners from a variety of milieus (public sector, foundations, and community organizations) and interested in working in tobacco control was noted as an important facilitating factor. New partners who were not traditionally involved in tobacco and health issues but were motivated to invest in this new field by the ministerial tobacco action plan and resources were also identified.

Questioned about the political environment in relation to their tobacco control actions, respondents identified three sets of influences present throughout the period $t_0 - t_1$. First, in Quebec, as in the rest of Canada, laws and regulations govern the behavior of a variety of actors with respect to tobacco and smoking - for example, measures restricting the retail sale of tobacco to minors and smoking bans in public spaces. The public health infrastructure is seen as being able to maximize compliance with these laws and regulations through supportive action. Second, the whole study period was marked by a broad societal debate about the adoption of a new tobacco law in Quebec and, more generally, about tobacco control interventions. This context encouraged the public health workforce to lobby political actors in support of legislative action. Lastly, the priority status of the tobacco and smoking - for example, measures restricting the retail sale of tobacco to minors and smoking bans in public spaces. The public health infrastructure is seen as being able to maximize compliance with these laws and regulations through supportive action. Second, the whole study period was marked by a broad societal debate about the adoption of a new tobacco law in Quebec and, more generally, about tobacco control interventions. This context encouraged the public health workforce to lobby political actors in support of legislative action. Lastly, the priority status of the tobacco and smoking - for example, measures restricting the retail sale of tobacco to minors and smoking bans in public spaces. The public health infrastructure is seen as being able to maximize compliance with these laws and regulations through supportive action.

At the broader organizational level, the document analysis showed that Site 1’s mission statement was strongly supportive of actions on a vast range of health determinants. Three approaches were advocated to ‘keep the population healthy’ (Garder notre monde en santé): disease prevention, health protection, and health promotion. The implementation of public policies was clearly identified as a preferred health promotion strategy to impact on population health.

3.1.1.2. The intermediate level. The Site 1 team was characterized by an appreciable level of resources. At the time of the study, the team was composed of about 10 professionals, varying between a total of 3.4 full-time equivalent positions (FTEs) in 1994–1995 and 5.6 FTEs in 1996–1997. In addition to the operating budget, the team relied on the special fund for tobacco control provided by the ministerial action plan. The additional monies were used mainly for hiring contract workers and, to a lesser extent, for the funding of community projects developed and/or implemented by community partners.

The tobacco unit professionals were all perceived by those interviewed as highly qualified, whether in tobacco content per se or intervention processes. Many were involved in research projects led by nationally and internationally recognized research colleagues, and research funds were also frequently obtained by professionals on the team in collaboration with these researchers. Many respondents mentioned extra-organizational alliances and partnerships as important resources in helping the team fulfill its mission. Throughout the period $t_0 - t_1$, Site 1 professionals collaborated with a variety of partners (foundations, charities, the public sector, and community organizations) at the local, provincial, federal, and international levels. Relationships with some partners appeared to be very close (presence of agreements, appointment of professionals as consultants, etc.), a situation that might be related to the long-term involvement by some professionals in the tobacco control field.

As previously mentioned, this tobacco control team was created in 1994 when seven Community Health Departments were merged into one regional department. While the current team’s professionals had not had much experience working with each other, many of the former Community Health Department teams prior to $t_0$ had already been very active in tobacco control programming, with some of them recognized as leaders in specific domains of expertise (e.g. interventions in workplace, school or health care settings). According to key informants, the pooling of all these skills at the regional level resulted in the creation of a mosaic of expertise in a variety of intervention targets and settings. In addition, given the distinct organizational cultures and ideologies that were brought together, the post-merger context was characterized by ideological debates about intervention strategies, for example, regarding the role of political action or the relative importance of prevention versus cessation objectives. During the period $t_0 - t_1$, this context could have encouraged the professionals to ‘find their own niche’ and develop their own specializations to avoid redundancies in interventions and frictions with professionals with divergent views.

The tobacco programming planning process for Site 1 was initially driven by the ministerial policy statements (Ministère de la santé et des services sociaux, 1992, 1997) and action plan (Ministère de la santé et des services sociaux, 1992, 1997) and action plan (Ministère de la santé et des services sociaux, 1992, 1997) and action plan (Ministère de la santé et des services sociaux, 1992, 1997). By comparison, the mean number of FTEs involved in tobacco control in the province’s other public health departments was 1.48 in 1996–1997.
services sociaux, 1994), with a strong ecological orientation as described above. With these as a backdrop, the Site 1 team undertook a strategic planning process and proposed a series of general, intermediate, and specific objectives for 1995–2000. This planning exercise resulted in objectives involving a variety of intervention strategies (education programs aimed at youths, retailers, and health care providers; implementation of protection policies; implementation of coalitions, etc.) to be implemented in diverse settings (school, workplace, community, and health care organization). The plan contained many elements mentioned in the ministerial documents, although its legislative component was far less developed. The subsequent operational planning phase translated the strategic objectives into projects with specific operational objectives, activities, timelines, partners, and resources. At this step, each proposed project was recorded on information cards and discussed in group meetings. This ensured that the components of the tobacco control plan did not overlap, thus encouraging diversification in the intervention targets and settings in the programming. In the final step, a professional, or more commonly, a group of professionals from the tobacco control team implemented each project relatively independently. Consistent with their high levels of expertise, these professionals enjoyed a considerable level of autonomy in the development and implementation of their respective project(s).

In a few cases, mostly involving research projects, professionals delegated the implementation phase of their project to community partners. In one example, resources were transferred to a community organization in order to have practitioners from this organization carry out one component of a large demonstration project on heart health. Another example involved supporting local health centers in implementing interventions and activities in workplace settings. In each case, professionals from the tobacco control team played an extensive consulting role in planning, implementation and evaluation. Partners reported a high level of satisfaction regarding these experiences as well as many benefits: learning opportunities, increased visibility, and the opportunity to network with new partners and develop new forms of intervention.

The analysis also identified two additional intermediate-level facilitating influences throughout the period $t_0 - t_1$. The first was the high level of support received by the professionals’ immediate supervisor for the adoption of an ecological approach to tobacco control. The second was related to the team norms that greatly emphasized multi-target, multi-setting interventions. Included in the professionals’ discourse were elements such as ‘acting as a multiplying agent by offering training opportunities in the community’, lobbying, evaluating programs, and developing tools. Working directly with the population appeared to be ‘of much less value than before’.

3.1.1.3. The micro level. The Site 1 professionals were all highly educated, most of them with a graduate degree, often in public health or in a related discipline. Their initial training disciplines were varied: medicine, nursing, other health sciences, communications, education, and physical activity. They had an average of 9 years of experience in public health, most often in tobacco control. Overall, these professionals had worked on a variety of intervention targets in many types of settings. Their attitudes and beliefs throughout the period $t_0 - t_1$ were highly favorable towards the ecological approach and they saw ecological interventions as having many advantages over more traditional types of intervention. Among these advantages were: having a higher potential for effectiveness, being better suited to the multifactorial etiology of smoking, having a better fit with community-level interventions, and having a ‘multiplier effect’. Nonetheless, a few respondents had reservations about the approach, related mainly to its perceived complexity and a lack of evidence about its real effectiveness.

3.1.2. Site 2

At the time of the study period, the Site 2 Public Health Department consisted of about 160 professionals. The tobacco control team was part of an administrative unit devoted to prevention and health promotion. This unit had 10 teams, each involved in a specific health issue (e.g. communicable diseases, environmental health). Within the tobacco control team, professionals were in charge of specific projects, each of which was considered as one component of the unit’s tobacco control programming. As in Site 1, one professional acted as liaison to the unit coordinator on behalf of the entire program, but each professional reported directly to the unit coordinator. Again, as expected from the case selection process, the projects addressed a variety of targets (individual, interpersonal, organizational, community, and political) across a variety of settings (e.g. school, health care organization). Compared to Site 1, Site 2 programming was more frequently aimed at political targets (Breton et al., 2004).

3.1.2.1. The macro level. The pattern of political and community influences identified in Site 2 was very similar to the one for Site 1. All elements identified as facilitating the adoption of ecological interventions at Site 1 (e.g. a community concerned by the increase in smoking rates among youths) applied equally well to Site 2. The presence of community partners interested in working on the tobacco issue was also highlighted as a strong community influence. Naturally, the influences from the political sphere—i.e. the ministerial policy statements and orientations—were identical to the ones described earlier for Site 1.

Several elements of the broader organizational environment also seemed to have had macro-level influences. The mission statement of Site 2 emphasized action on factors having an impact on the population’s health and well-being. Identified as health determinants, these factors encompassed behaviors and lifestyle, physical and social environment,
social ties, health services organization, biological and genetic factors. No specific mention was made of political factors. However, the documents review analysis revealed that although preventive interventions were still mainly seen as a matter of individual behaviors at Site 2, ‘the target is less individuals and their levels of knowledge but more the various facets of the environment in the wider sense’. With respect to tobacco as a public health target, site 2 was characterized by a strong level of management and staff support towards intervention in this field. Here, unlike Site 1, tobacco control was included among the priority issues for the region.

3.1.2.2. The intermediate level. The Site 2 team had fewer resources than Site 1. At the time of the study, the team was composed of three to five professionals representing between 2.7 FTE (1996–1997) and 1.9 FTE (1997–1998). These professionals were all considered to be relatively inexperienced in the tobacco area: new to the tobacco control field. However, their work basically involved the operational planning and implementation phases of a 3-year plan developed by one of two former senior members of the team, who were recruited shortly after t₀ to work on tobacco control at the provincial level. The expertise of this team was clearly in the fields of planning/programming, development of intervention strategies and implementation support.

As in Site 1, the team benefited from the tobacco control funds provided through the ministerial action plan. But, contrary to what was done at Site 1, the major part of this budget was transferred to community partners who were given major responsibilities for implementing the plan in the community. The remaining funds were devoted to consolidating the tobacco control team by hiring contract workers. In addition to the tobacco control funds, the Site 2 team benefited from special budgets from various external agencies for the support of specific activities in research, intervention, or the dissemination of information. The amount received was, however, much more limited than at Site 1. Finally, similar to Site 1, Site 2 professionals were in constant contact with a variety of external partners, identified as important resources contributing to the team’s efforts. In this respect, given their extensive role in the tobacco control programming process, community partners were considered invaluable allies.

Following a similar path to the one observed at Site 1, Site 2’s planning process was initially driven by ministerial policies and orientations (Ministère de la santé et des services sociaux, 1992, 1997). Based on these orientations, a strategic planning phase resulted in the three-year plan mentioned above, prioritizing one population group (youth) in all four intervention streams (prevention, health protection, cessation, and surveillance/evaluation). This plan also proposed the adoption of a comprehensive approach involving a variety of intervention strategies (legislation, communication, etc.) and the establishment of partnerships with community players. Sharing many elements with the ministerial action plan, it stressed legislation and regulation. One professional was responsible for carrying out the annual planning for each stream. In the last step, the community was invited to submit suggestions for interventions, and funds were then allocated to selected partners to implement some of these suggestions in the community.

Both of the two main types of partners found in Site 2 (local health centers and other community organizations) were considered to be multiplier agents, acting as intermediaries between the tobacco control unit and the population. Throughout the period t₀−t₁, all were in close contact with key community actors such as schools or municipal governments. According to some of these partners, many factors were related to the successful initiation of a partnership with the public health unit: previous collaboration with the public health unit, tobacco control or a related theme being part of the organization’s mission or program, and a perceived opportunity to increase partners’ resources or visibility. Other elements seemed to play a key role at the implementation phase: previous contacts or collaborations between the partner and the targeted population groups, support from the public health unit’s tobacco control team, and previous interventions having been well-received by the targeted groups. A few elements were identified as hindering the partnership process: insufficient resources, a perceived lack of control on the part of the partner, and being associated with the public health unit when it is involved in a controversial issue. Despite these barriers and some disagreements over budget management and evaluation issues, results showed that on the whole, partners were highly satisfied with their experience.

Similar to Site 1, mechanisms were put in place to ensure that the proposed plan was followed, so that the activities would include action on a variety of intervention targets and settings. For example, an internal Coordination Committee and an external Advisory Committee frequently reviewed the annual program plan and activities. The data also showed that the unit coordinator strongly supported the importance of adhering to the action plan.

A final, significant, intermediate-level element was found in the team norms, which had a strong focus on interventions having ‘a mass effect’, involving multi-level and multi-target action. Work on environmental factors also emerged as a favorite intervention strategy.

3.1.2.3. The micro level. As found at Site 1, professionals were all highly educated with most holding a Master’s degree. Training backgrounds were diverse: environmental sciences, health administration, sociology, and physical activity. While all members had all recently been involved in the tobacco control field, experience in public health was somewhat varied, ranging from 2 to 12 years.

In terms of individual attitudes and beliefs, the picture was very similar to the one found at Site 1 in that
professionals seemed to strongly support an ecological approach in public health and tobacco control. Political action on tobacco control was also strongly supported.

3.2. Factors not facilitating the integration of the ecological approach in programming according to Scheirer’s model

At both sites, certain elements of the organizational environment were found not to be coherent with the innovation. As shown in Table 2, many of these elements (e.g. negative attitudes towards tobacco control interventions, the absence of continuing education) were common to the two sites. Some elements were site-specific, for example, tobacco control not being a regional priority (Site 1) and having tobacco control team professionals who had only recently become involved in the tobacco control field (Site 2).

4. Discussion

The results of this study show that the period between 1994 and 1997 was marked by a political and social climate highly favorable to the adoption of an ecological approach to tobacco control in Québec. Among the facilitating factors was certainly the special ministerial initiative with its accompanying financial resources and action plan, so clearly oriented towards the development of multi-target, multi-setting interventions. This was also a period in which many actors, including the two tobacco control teams studied, were working towards the adoption of new tobacco control legislation. This facilitated the recruitment of new partners, the implementation of lobbying actions and, given the public debate emerging around the tobacco issue, a certain openness in the population towards tobacco control.

As for the organizational and professional influences on ecological programming, the cases in this study had two distinct configurations, both of which were associated with an effective implementation of the ecological approach. At Site 1, the ecological approach was central to the organizational mission, but tobacco control was not among the regional health priorities. Many tobacco professionals felt that tobacco control intervention was not well supported in the organization. Despite this situation, the level of resources at the disposal of the tobacco control team—financial resources, a rich network of partners and above all, highly qualified human resources, mostly supportive of ecological interventions—was quite high. At this site, a varied portfolio of interventions was assembled through the merging of smaller tobacco control teams already involved in a variety of actions, resulting in highly ecological programming. Indeed, it could be said that the arrival of the ministerial action plan merely put a frame around the existing ecological programming. Also of interest was this team’s planning process, which appeared much less formalized than the one at Site 2. This lower level of formalization could be related to the availability of established ecological programs, the high levels of staff autonomy and experience, and the post-merger context.

At Site 2, the ecological approach was also a central concept in the organizational mission. However, in contrast to Site 1, the organization was highly supportive of tobacco control interventions and the tobacco issue ranked high among the regional priorities. The tobacco control team was

<table>
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<td>Negative attitudes towards tobacco control interventions</td>
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<td>A weak level of collaboration between the tobacco control team and other teams involved in intervention planning</td>
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much smaller than at Site 1. Although all professionals were highly qualified in public health planning and intervention, none had much experience in the tobacco control field. The ministerial action plan was a very useful tool here for two main reasons. First, although the Site 2 team was already involved in innovative tobacco control interventions at the beginning of the study period, such programming was of more limited scope than at Site 1. The ministerial guidelines helped orient the interventions to be developed so that a variety of intervention targets and settings would be included. It also added new resources for community partners, thus freeing up the human resources dedicated to tobacco control in this unit. The quite formalized planning processes used in Site 2 were also mainly aimed at ensuring that the programming complied with ministerial guidelines, rather than at pursuing existing programming as in Site 1. This could be due to the relative inexperience of this team and the fact that it had essentially transferred most of the tobacco control resources to community partners, but it meant that the ministerial action plan was quite closely reproduced.

These qualitative case study results confirm previous quantitative results showing a relationship between a variety of professional and organizational characteristics and the integration of an ecological approach into public health programs. They also shed more light on the influence mechanisms of two sets of characteristics.

First, in both study sites we found professionals with high levels of competence in public health and, at least in the case of Site 1, in tobacco control content per se. Qualifications were deemed high, and key staff and other stakeholders seemed to have high levels of knowledge and favorable attitudes regarding the ecological approach concept. This picture is highly consistent with results obtained by Levesque et al. (2000), where professionals showing beliefs consistent with the ecological approach, as well as higher levels of knowledge and perceived competencies regarding this approach, were more likely to state that they used environmental modification strategies such as organizational or policy change in their practice. In their survey of Canadian tobacco control programs, Richard, Gauvin, et al. (2002) observed that in the more ecological programs, professionals reported a greater knowledge of the ecological approach. University training was a particularly consistent correlate of knowledge and perceptions associated with the ecological approach in this study. Lastly, Holden et al. (1998) showed the benefits of using staff trained in the development of comprehensive health education strategies, when evaluating the comprehensiveness or number of intervention levels used in a breast and cervical cancer screening program. On the whole, such results support the notion that ecological health promotion intervention requires a solid basis of knowledge and training in public health, and specific training regarding ecological approaches. It is quite plausible that higher levels of education such as post-graduate training open the mind to system thinking, and that this, more than anything else, opens the door to the adoption of an ecological approach in one’s practice.

Second, professionals from the two exemplary teams were involved in a vast array of extra-organizational relationships with external actors and agencies. These relationships took many forms, from information sharing to research collaborations to implementing partnerships with community agencies (the latter being especially dominant in Site 2). Again, these results are highly consistent with those obtained in previous studies. For example, Richard, Gauvin, et al. (2002) observed that the frequency of collaborations and contacts with external partners was greater in programs where the ecological approach was highly integrated, compared to programs with an average or a weak level of integration. In another Canadian study, Riley et al. (2001) found that partnership with other local agencies was a significant predictor of the level of implementation of comprehensive, community-based heart health programs. On the whole, such results are highly consistent with organizational research showing that organizations with more external contacts and partners tend to be more innovative. A variety of mechanisms could explain such a relationship.

Firstly, the network of links an organization maintains with external sources of information and ideas, and the partnerships that result from these exchanges, might certainly be channels for the flow of innovative approaches and practices (Aiken & Hage, 1971; Albrecht & Ropp, 1984; Ebadi & Utterback, 1984; Monge, Cozzens, & Contractor, 1992; Weenig & Midden, 1991). This might be the case at Site 1, where many professionals seemed deeply engaged in a variety of professional, political, and scientific networks. Secondly, external contacts and collaborations could also help tackle the challenges associated with the resource-demanding and difficult task of implementing a complex innovation such as ecological programming. At Site 2, the building of alliances with community partners allowed human resources levels in the tobacco control team to be strengthened and clearly facilitated access to a new pool of expertise and a variety of intervention settings. As shown by our data, this collaborative model had advantages not only for the tobacco control team itself but also for its partners and, in the long run, for the whole community. As years of research and experience in health promotion have shown (Bracht & Kingsbury, 1990; Gillies, 1998; Minkler & Wallerstein, 1997), such collaborative projects can help build community competence and foster empowerment to the extent that partnerships and alliances are accompanied by resources (e.g. budget, training, networking opportunities) and the presence of genuine opportunities to influence the public health agenda.

On a theoretical note, this study confirmed the usefulness of Scheirer’s model in identifying elements of the environmental, organizational, and professional environments that
facilitate the integration of an ecological approach in the programming of the two cases. However, some of the factors postulated as exerting an influence were not found to be essential to the integration of the framework. For example, at neither site did we find concrete evidence of ongoing training activities, although this may merely reflect the high level of professionals’ qualifications. It may be that the absence of some factors are compensated by the presence of other factors; for example, numerous exchanges between professionals and a variety of partners and milieus might play a compensatory role for the lack of ongoing training.

5. Lessons learned

Using Scheirer’s model of program implementation with a qualitative methodology helped to identify two distinct configurations of factors associated with the implementation of an innovative programming approach in public health. This not only allowed cross-methodological validation of quantitative results, but also helped shed more light on the mechanisms underlying the action of specific facilitating factors or conditions (e.g. number of contacts and collaborations between the public health departments and external partners). However, as a reviewer commented, the study design did not always allow an in-depth exploration of the processes leading to the development of the facilitating conditions between $t_0$ and $t_1$. For example, while it was important to identify the influential role of intermediate-level team norms, it would certainly also have been instructive to learn how those norms had become favorable in the first place. Similarly, it would have been valuable to know more about how the teams’ professionals might have adapted their personal goals and attitudes to better fit in with team norms. Thus, a strength of the study, the use of a highly comprehensive and inclusive set of theoretical propositions at multiple levels of analysis, was also a limitation for the in-depth investigation of specific factors. Researchers interested in unraveling complex specific processes at the root of innovation implementation processes might be well advised to take a narrower approach.

A second important lesson learned is related to the retrospective study design. The main advantage of this design lay in knowing the outcome of the implementation process that is, in our ability to efficiently identify exemplary cases. Given the necessary limitations imposed by the high cost of qualitative research, a prospective study of selected public health organizations may have failed to capture any exemplary cases. Nevertheless, the price to be paid for this efficiency is that the directionality of the associations identified might at times be called into question. While it is clear that some variables preceded the implementation of the ecological programming at $t_1$ (e.g. the ministerial budget), others could be conceived, at least partially, as having emerged as a result of this implementation. The “public opinion in favor of tobacco control interventions” is an interesting example, in that it could indeed have developed as a result of professionals’ initial efforts rather than preceding them. Another classical limitation of retrospective designs is related to respondents’ memory biases and the loss of potentially useful documentary evidence. Given sufficient resources, longitudinal designs, such as those used by Miller, Moore, Richards, Kotelchuk and Kaluzny (1993) in their study of the capacity of public health units to adapt to changing environments, could certainly be useful in studying the implementation of new health promotion programming approaches.

A third lesson is related to the limited number of cases investigated. While we initially hoped to identify a set of robust factors that would have explained the levels of implementation of the ecological approach across the two cases, we finally concluded that two distinct sets of factors led to a similar level of integration. It is not clear to what extent these two configurations would be able to explain a larger number of empirical realities. A higher number of cases and a greater variety of organizational contexts would be needed to establish their robustness. As well, an investigation of contrasting departments (e.g. those at different positions on our ecological scale) could certainly be a powerful research strategy to consider.

6. Conclusion

Despite its limitations, the present study can help identify ways to develop and support exemplary practice. First, our two exemplary cases had many characteristics that are classically associated with the adoption of innovative professional practices. These results are important not only because they confirm results obtained in earlier studies of the ecological approach in public health, but also because they allow a better appreciation of the mechanisms that can stimulate and support such an innovation in programming. The observation that both teams were involved in a diversity of relationships with external collaborators and partners is a case in point. Planners wishing to stimulate innovation in their units should certainly consider facilitating the establishment of collaborations and partnerships for their staff. The delegation of responsibilities to outside partners for project implementation may be one effective avenue, at least in the context of community programs, for embedding collaboration in practice. Moreover, given the important role played by the competencies of professionals, and their openness toward innovative intervention approaches, planners should ensure that their staff are well-prepared for developing and implementing interventions aimed at a variety of health determinants. More generally, the results of this study should help facilitate the implementation of this innovative health promotion approach, as it provides a thorough description of two teams that have successfully met the challenge of integrating it into their practices, despite its complexity.
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