Communities of Practice as a Professional and Organizational Development Strategy in Local Public Health Organizations in Quebec, Canada: An Evaluation Model

La communauté de pratique à titre de stratégie de développement organisationnel et professionnel dans les centres de santé et de services sociaux au Québec, Canada : un modèle d'évaluation

LUCIE RICHARD, PHD
Full Professor, Institut de recherche en santé publique de l'Université de Montréal (IRSPUM)
Faculty of Nursing, Léa-Roback Research Centre on Social Inequalities of Health in Montreal, and Research Centre
Institut universitaire de gériatrie de Montréal, Université de Montréal
Montreal, QC

FRANÇOIS CHIOCCHIO, PHD
Associate Professor, Institut de recherche en santé publique de l'Université de Montréal (IRSPUM) and
Department of Psychology, Université de Montréal, Montreal, QC

HÉLÈNE ESSIEMBRE, PHD
Research Associate, Department of Psychology, Université de Montréal, Montreal, QC

MARIE-CLAUDE TREMBLAY, MA
Graduate Student, Institut de recherche en santé publique de l'Université de Montréal (IRSPUM) and School of Public Health
Université de Montréal, Montreal Public Health Department, Montreal Health and Social Services Agency, Montreal, QC

GENEVIÈVE LAMY, MSC
Research Associate, Montreal Public Health Department, Montreal Health and Social Services Agency, Montreal, QC

FRANÇOIS CHAMPAGNE, PHD
Full Professor, Institut de recherche en santé publique de l'Université de Montréal (IRSPUM)
and School of Public Health, Université de Montréal, Montreal, QC

NICOLE BEAUDET, MSC
Planning, Programming and Research Officer, School of Public Health, Université de Montréal
Montreal Public Health Department, Montreal Health and Social Services Agency, Montreal, QC

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Abstract

Communities of practice (CoPs) are among the professional development strategies most widely used in such fields as management and education. Though the approach has elicited keen interest, knowledge pertaining to its conceptual underpinnings is still limited, thus hindering proper assessment of CoPs' effects and the processes generating the latter. To address this shortcoming, this paper presents a conceptual model that was developed to evaluate an initiative based on a CoP strategy: Health Promotion Laboratories are a professional development intervention that was implemented in local public health organizations in Montreal (Quebec, Canada). The model is based on latest theories on work-group effectiveness and organizational learning and can be usefully adopted by evaluators who are increasingly called upon to illuminate decision-making about CoPs. Ultimately, validation of this conceptual model will help advance knowledge and practice pertaining to CoPs as well as professional and organizational development strategies in public health.

Résumé

Les communautés de pratique (CdP) figurent parmi les stratégies de développement professionnel les plus employées dans des domaines tels que la gestion et l'éducation. Bien que cette démarche ait suscité un grand intérêt, les connaissances au sujet de ses bases conceptuelles demeurent fragmentaires, faisant ainsi obstacle à une évaluation adéquate des effets des CdP et des processus qu'elles génèrent. Pour remédier à cette lacune, cet article présente un modèle conceptuel qui a été mis au point afin d'évaluer une initiative fondée sur une stratégie de CdP : les laboratoires de promotion de la santé. Il s'agit d'une intervention visant le développement professionnel, qui a été mise en œuvre dans des centres de santé et de services sociaux à Montréal (Québec, Canada). Le modèle tire profit des dernières théories sur l'efficacité des groupes de travail et sur l'apprentissage organisationnel. Ce modèle peut servir aux évaluateurs qui s'intéressent à la prise de décision éclairée dans le contexte des CdP. En bout de ligne, la validation de ce modèle conceptuel contribuera à l'avancement des connaissances et des pratiques propres aux CdP de même qu'aux stratégies de développement professionnel et organisationnel dans le milieu de la santé publique.

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A CRUCIAL ISSUE IN THE PUBLIC HEALTH SECTOR IS THAT OF PROFESSIONAL development for a workforce in a context of change – change both within public health itself and in the setting in which it operates. New approaches to intervention, emerging problems and new ways of organizing services present challenges that, more than ever, demand updating of practitioners' and managers' skills (Frenk and Gonzalez-Block 2008; Paccaud 2011).

Such a changing landscape has significant repercussions for the workforce, and questions are raised about professionals' capacity to adapt (Amodeo 2003; Scharff et al. 2008). For

many years, efforts have been made to develop means to support public health professionals within such a context (Calhoun et al. 2008; Gebbie and Turnock 2006; Scharff et al. 2008). Continuing education plays a key role in this regard.

Koo and Miner (2010) have presented an analysis of the issues in professional development in public health and provided a framework for guidance based on the latest knowledge in adult education. They point to the need for a number of elements, including access to training outside academic settings; reflexive learning grounded in the day-to-day experience of the workforce and the problems it faces, involving situations as complex as those encountered in practice; and programs focusing on results considered as meaningful and tangible by learners. A number of the points they enumerate are reflected in CoP, a professional and organizational development approach that has already been widely implemented in management and education settings (Fontaine and Millen 2004; Wenger 1998) and that could prove a promising avenue for public health.

Drawing on the CoP model, a team from Montreal's *Direction de santé publique* (DSP; Public Health Department) recently developed and introduced a professional development strategy to support local public health teams in the *Centres de santé et de services sociaux* (CSSS; Local Health and Social Services Centres) in its territory. In accordance with Quebec's most recent health system reform (2005), CSSSs pertain to the local level of the public health network. They have been assigned responsibility for their population and, accordingly, must formulate local action plans to implement the innovative models put forward in provincial and regional plans (Ministère de la santé et des services sociaux 2004). The regional authority is called upon to establish support systems for the CSSSs in their new public health responsibilities. The purpose of this paper is to describe one such initiative, Health Promotion Laboratories, and to situate them as a type of CoP focused on professional and organizational development. A further purpose is to present the conceptual model that was developed to evaluate the labs and to discuss their potential for the advancement of knowledge and practice in public health.

Health Promotion Laboratories

Health Promotion Laboratories bring together about 10 managers and professionals from different disciplines recruited from a CSSS team who are willing to meet regularly on a voluntary basis, with the goal of changing some of their practice in order to improve interventions. These labs provide participants with a concrete opportunity to engage in reflective practice and skills development as they consider issues regarding their work in their territory and the need for innovation. Planning models and concepts emerging from the new public health movement are promoted in the labs. The regional authority – in this case, the DSP – delegates one of its professionals to take on a support role throughout the two to three years of the project, during which meetings are held every two or three weeks. The CSSS also gives participants time off to prepare for and attend the meetings. Sessions are led by one of the participating managers or professionals. Having approved the initiative, the CSSS executive director commits to paying regular visits to provide support to the lab.

A seven-step operating procedure is suggested for labs: (1) identify an issue and the appropriate participants who are interested in addressing it; (2) specify the operational approach; (3) grasp the basic public health concepts; (4) broaden the issue; (5) pinpoint possibilities for action; (6) develop a partnership; and (7) propose and implement a new health promotion intervention (referred to below as "the project"). Participants are asked to share their experiences in the lab with their colleagues in the organization; they are thus expected to transfer the knowledge produced. Furthermore, the entire team from which the participants are recruited is involved in the decisions and actions that emerge from the labs and can consequently develop its skills. The DSP's involvement comprises providing support to the CSSSs to help elicit and foster reflection and discussion; guiding the process; providing support to prepare for and lead a lab; and encouraging the sharing of expertise and interaction between local and regional instances (see Tremblay et al. 2012 for a detailed description of labs).

Health Promotion Laboratories: A Community of Practice

Communities of practice (CoPs) are groups of individuals who share a concern or passion for a subject and interact with one another on an ongoing basis to expand their knowledge and develop their expertise (Wenger 1998; Wenger et al. 2002). CoPs may take different forms, depending on their size; their homogeneity or heterogeneity (whether they involve a single discipline or several); their scope, both internal (professionals from the same team) and external (clients, partners, etc.); whether they arise spontaneously or are planned; and their relationship with the organization (invisible, unacknowledged until they are institutionalized). Irrespective of their various forms, CoPs share three basic features. The first is a *field of knowledge* or a theme that determines their raison d'être. The latter is the field that brings the individuals together, guides their learning and defines the identity of the community (Wenger et al. 2002: 31). It suggests the "long-standing issues" that require sustained learning. The second feature is a *community of participants* who interact with one another and learn together, build relationships and develop a sense of belonging, mutual commitment and common identity. The third feature is a *shared practice and understanding*, a body of knowledge (theoretical, practical, anecdotal, etc.) that provides the common foundation that allows participants to pursue common goals and work and learn together.

CoPs differ from other organizational entities such as project teams, work groups and informal networks in that they focus on the co-development of skills and the construction and exchange of knowledge. In practice, the distinctions are not quite so clear-cut, and a CoP may have points in common with other organizational entities (Gabbay et al. 2003); however, the basic features listed above must appear.

As a tool for knowledge management and professional and organizational development (Li et al. 2009), the concept of CoP has been applied in the fields of management (Fontaine and Millen 2004; Millen et al. 2002), education (Butler et al. 2004) and urban planning (Soekijad et al. 2004). It has also recently been applied in the health sector (Bentley et al. 2010; Li et al. 2009). A number of authors, noting the often limited effectiveness of traditional strategies to foster improved professional practice in health (Grimshaw et al. 2001; Grol and

Grimshaw 2003), have highlighted the potential of CoPs as a means of facilitating the updating of practices and the introduction of evidence-based innovations and support for enhanced performance (Andrew et al. 2008; Fung-Kee-Fung et al. 2008; Mallinson et al. 2006; White et al. 2008). The Centers for Disease Control and Prevention (CDCP 2011) are thus sponsoring a support network for virtual CoPs, and innovative experiments have been conducted in a variety of contexts, including smoking (McDonald and Viehbeck 2007) and cancer (Bentley et al. 2010; Fung-Kee-Fung et al. 2008). Still, CoPs are not yet widely used in public health (Bentley et al. 2010; Li et al. 2009).

A number of studies provide detailed descriptions of CoPs and the factors associated with their implementation (Barrett et al. 2009; Chua 2006; McDermott 2000). Millen and colleagues (Fontaine and Millen 2004; Millen et al. 2002) assessed the effects of CoPs in 10 organizations from different sectors. Using sound methodology, they reported benefits on the professional (e.g., level of trust, abilities), group (e.g., creation of a common context) and organizational levels (e.g., innovation, business opportunities, work scheduling). In a review of experiments conducted in the health sector, Bentley and colleagues (2010) documented the positive effects on such factors as professionals' sense of belonging, interpersonal communication and the exchange of knowledge, job satisfaction and adherence to clinical guidelines. These authors stress that this body of work suffers from certain limitations in that it provides little information regarding the mechanisms that might help explain how the observed benefits accrue. In a critique of the concept and of the numerous metaphors its promoters use to guide the implementation of CoPs, Bentley and colleagues (2010: 4, 3) conclude that "the evidence is only emerging on the success of health sector CoPs" and "Whether or not CoPs are an effective form of collaboration remains an open question." Given the lack of clarity of the concept and its dimensions (Bentley et al. 2010; Li et al. 2009), as well as the scarce information on the processes at work in CoPs (Bentley et al. 2010; Verburg and Andriessen 2006), one can only conclude that further research is needed to better understand their effects, the processes generating such effects and the influence of contextual factors.

An examination of the literature reveals that the Health Promotion Laboratories initiative developed by the DSP shares several common features with the CoP model (Wenger et al. 2002). With the aim of improving professional practices, the labs bring together a community of participants who share a common foundation of knowledge and practices and who are interested in public health practice issues. Although empirical studies point to potential benefits stemming from the introduction of CoPs, the search for theoretical formulations that could help identify effect variables and, especially, their related process variables has not proven very successful, thus confirming previous conclusions (Bentley et al. 2010; Li et al. 2009; Verburg and Andriessen 2006). Work on theory development is thus necessary, and an excellent point of departure is provided by knowledge in at least two fields: theories on the effectiveness of work groups and on knowledge dissemination in organizational settings.

Towards an Evaluation Model for Communities of Practice

Professional development: Working-group effectiveness models

Although CoPs are a relatively new social entity, there are a number of models and a long and rich tradition of research that can help understand them. Indeed, concepts from open systems theory have helped shape applied organizational social psychology for decades (Katz and Khan 1978). Open systems theory has set the stage for other, more specific functional models (i.e., input–process–output). These models have inspired many conceptualizations of team effectiveness (Wittenbaum et al. 2004). Four reasons support the notion that there is sufficient kinship between CoPs and teams to benefit from team functional models.

First, definitions of teams concur that CoPs are akin to teams. For example, Kozlowski and Bell (2003: 334) define teams as "composed of two or more individuals who (a) exist to perform organizationally relevant tasks, (b) share one or more common goals, (c) interact socially, (d) exhibit task interdependencies (i.e., workflow, goals, outcomes), (e) maintain and manage boundaries, and (f) are embedded in an organizational context that sets boundaries, constrains the team, and influences exchanges with other units in the broader entity." Reviews of team types suggest that CoPs can be distinguished as self-managing teams, autonomous teams (Hollenbeck et al. 2012), advisory teams (Devine 2002) or parallel teams (Cohen and Bailey 1997).

Second, CoPs are embedded in an organizational context (Kirkman et al. 2011), or more than one context when they serve as an inter-organizational coordination structure (Uitdewillgen and Waller 2011). Third, Raven (2003) describes CoPs on a continuum comprising elements common to CoPs and teams such as emergent mission, voluntary membership, dynamic leadership and loose task interdependence. Because of the kinship between these two forms of entity, team effectiveness models can shed light on CoPs' effectiveness. Fourth, studies using functional models have already produced interesting results. For example, a recent study of CoPs shows that the extent to which CoPs are aligned with organizational objectives, comprise highly task-interdependent individuals, and promote participation and self-organization is predictive of CoPs' effectiveness (Kirkman et al. 2011). Consequently, we believe a functional approach derived from team effectiveness models is likely to help the study and understanding of CoPs embedded in healthcare organizations.

Our model (see Figure 1, left side) takes footing on the structure and content of Ilgen and colleagues' (2005) input–mediators–output–input (IMOI) model of team effectiveness. The IMOI model takes its strength from two improvements over the traditional input–process–output models. First, the IMOI model uses the term "mediation" to explain the transformation of inputs into outcomes. As a transformative process, mediations take two forms: processes and emergent states. Processes refer to the members' interdependent actions that are oriented towards a common goal. Emergent states refer to attitudes, values, cognitions and motivations that emerge from the individual level and become group-level properties. Our review and thinking of CoPs' challenges lead us to consider that individual characteristics, group

characteristics and resources will be transformed by processes (e.g., communication, coordination, learning and social interactions) and emergent states (e.g., psychological safety, intra-team trust, cohesion and commitment) to produce outcomes such as competencies, performance, innovation, team viability and individual satisfaction.

FIGURE 1. CoP evaluation model
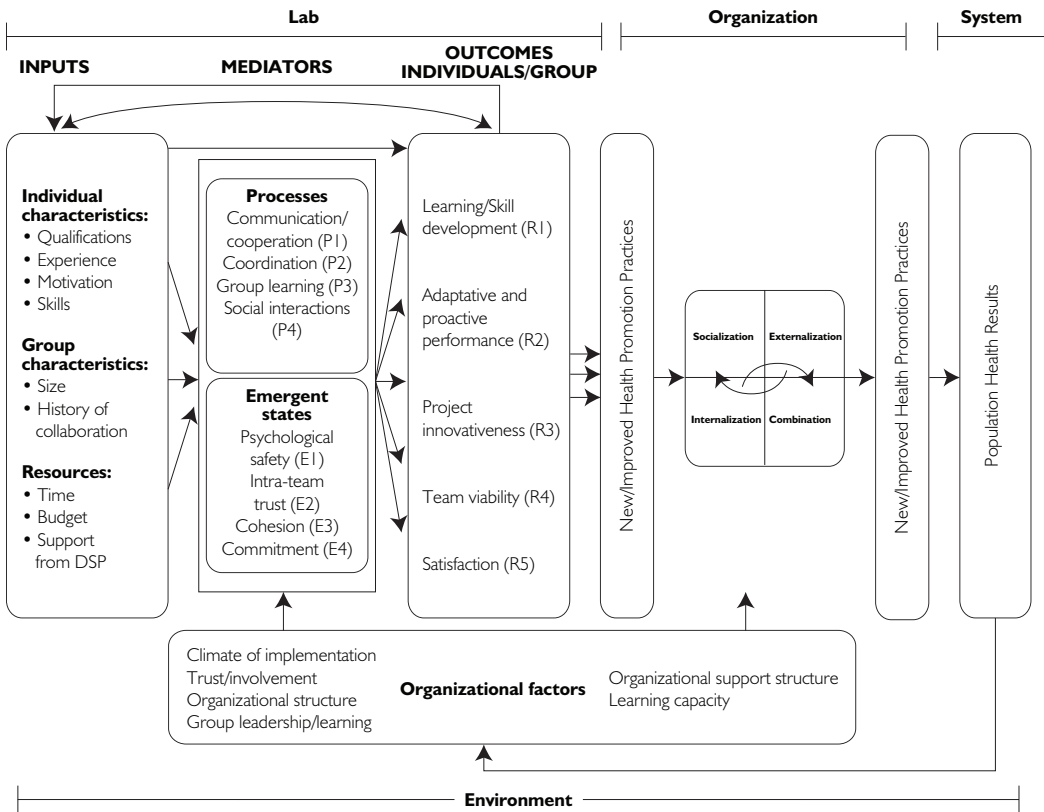
Moreover, because of the importance of feedback loops in the IMOI models, outcomes will have an impact on organizational learning and practices that will necessarily affect individual and group characteristics. We believe this aspect is particularly interesting given the ongoing and dynamic nature of CoPs. Furthermore, the ways in which outputs, such as knowledge sharing, are reinvested over time in CoPs is important because these entities need longer life cycles for their outputs to take effect (McDermott and Archibald 2010).

Organizational learning: The Nonaka model
This portion of the model (see Figure 1, right side) deals with the process by which the introduction of labs may produce effects on the organization. The possible organizational impact of CoPs rests on the hypothesis that the benefits they bring participating individuals, particularly in terms of new practices, will be spread more widely in the organization – first and primarily,

in the team to which the participating professionals belong. Individual learning is thus to be transformed into organizational learning (Cohen and Levinthal 1990; Fiol 1994).

Organizational learning can be approached from a number of perspectives offered by sociology, psychology, politics and anthropology, among other fields (Dierkes et al. 2001). Although many models have been proposed, few have been the subject of practical application or applied research (Demers 2007). Nonaka's (1994, 2006) model is one of the most often cited in the literature on the subject. It posits two types of knowledge: explicit and tacit. Explicit knowledge is formal, learned knowledge that may be codified in the form of data, manuals or specifications. Tacit knowledge is knowledge derived from experience; it is highly personal and hard to formalize. The Nonaka model sees organizational learning as a dynamic process of knowledge creation based on four processes of "conversion," or sharing, of tacit and explicit knowledge: socialization, the sharing of tacit knowledge among individuals; externalization, the articulation of tacit knowledge as explicit concepts; the combination of different units of explicit knowledge; and internalization, the transformation of new explicit knowledge into tacit knowledge. Table 1 provides examples of each of these processes. Ultimately, this sharing of knowledge gives rise to the emergence of new health promotion practices within the organization. These propositions regarding the dissemination/conversion of knowledge within an organization have recently been validated by Champagne and colleagues (2011) in their evaluation of the SEARCH/EXTRA program, a professional development initiative that bears some resemblance to the Health Promotion Laboratories project.

TABLE 1. Processes of knowledge dissemination/conversion: Definitions and examples

Process	Definition	Examples
Socialization	Sharing of tacit knowledge among individuals	Participants share their experiences in the lab with colleagues from other teams in the organization
Externalization	Articulating tacit knowledge as explicit knowledge	Lab participants present a poster during a conference for professionals and researchers in public health
Combination	Integrating different units of explicit knowledge	Participants incorporate knowledge derived from the labs into an information document for their colleagues at work
Internalization	Transforming new explicit knowledge into tacit knowledge	New labs are introduced to other teams in the organization

The different characteristics of the organizational and environmental contexts in which the labs operate are likely to influence the way they are implemented and the effects they produce. In line with Champagne's (2002: 46) conceptual framework, the implementation and effects of labs are deemed to result from the climate of implementation, the trust and involvement of the actors, the organizational structure, and group leadership and learning. Regarding the question of the dissemination of knowledge generated in labs, Cousins and colleagues (2004) reviewed the literature on factors that influence knowledge utilization from an organizational learning perspective. They suggested two broad categories of organizational

factors: organizational support structures and learning capacity. The support structures include the stock of organizational knowledge, organic structure, communication processes, incentive systems, educational activities and information systems. Learning capacity refers to organizational culture, leadership for learning, explicit learning strategies, and teams' work habits and processes. Table 2 outlines each of these factors.

TABLE 2. Organizational context: Dimensions investigated and examples of indicators

Construct	Dimensions	Examples of indicators
Climate of implementation	Management strategies	Support of the CSSS in implementation; existence of institutional documents to introduce the labs; level of support by professionals from the DSP, etc.
	Adequacy of resources allocated for implementation	Levels of resources in personnel, material and time
Trust and involvement of the actors	Shared vision and support for innovation	Clarity of expectations regarding the labs; perception of potential effects of labs; consistency of labs with other undertakings in the organization; degree of involvement of managers and professionals
Organizational structure	Complexity and organic structure	Degree of formalization (type of evaluation of professionals, etc.); extent of centralization of authority (accessibility of managers, degree of autonomy of employees, etc.)
	Organizational culture	Openness to new ideas, error management, etc.
Learning and leadership	Collective appropriation of labs	Willingness to carry on with labs, level of enthusiasm, etc.
Organizational support structure	Internal and external communications network	Relations with institutions and community; intra-organizational communication, etc.
	Stock of knowledge	Attribution of value to scientific evidence; use of research in decision-making; degree of access to new knowledge, etc.
	Decision process	Extent of participation by professionals, etc.
Learning capacity	Expertise and experience	Availability of continuing education; proportion of professionals with higher education, etc.

Discussion

This paper has presented Health Promotion Laboratories and a conceptual model that can be used to evaluate them. The program, which accords with the CoP model, has proven to be an innovative professional development strategy and to respond well to concerns that have been raised about professional development in public health. The following discussion deals

with the potential that the implementation and evaluation of the labs have for the advancement of knowledge and practice in public health.

The practice of public health requires models for action that are congruent with the complexity of the phenomena one wants to change. Thus, seeking to affect the health of a population implies consideration of the social determinants of health and of the complex interactions involving the individual, the community and other dimensions of the environment (Tremblay and Richard 2011). CoPs, such as the Health Promotion Laboratories, offer a model for action that has great potential value in view of the conditions that must be established in order to make such action possible. "In its place, models of distributed leadership based on collaboration, a shared vision and flexibility in both timing and approach are those most likely to succeed in building health-promoting organizations and healthy individuals" (Norman 2009: 870). The labs are, in fact, founded on flexible networks of interprofessional collaboration that are developed by forming multidisciplinary teams around a common theme to share their experiences. They thus constitute a unique opportunity for professionals to attain a broader and more profound vision that will equip them to deal head-on with the inherent complexity of health problems.

As dynamic, adaptive systems that evolve over time in accordance with an organizational context and a contingent social environment, CoPs are themselves complex realities. Consequently, they can be properly evaluated only with research mechanisms that are also grounded in a complex vision of this reality. Many authors have stressed the potential of dynamic systems models for evaluating the implementation and impact of public health programs, particularly initiatives based on partnership and collaboration (Norman 2009). The purpose of the conceptual model presented in this paper, a model grounded in open systems theory, is to provide a complex understanding of the labs. The strengths of the model include its conceptualization of the causal processes that lead to learning in both the team and the CSSS, its formalization of the links between the individual, the group and the organization, and the importance of its feedback loops. The evaluation model is thus an attempt to make up for one of the shortcomings identified in the literature, namely, the small number of studies that have dealt with the processes by which CoPs produce their effects.

Another feature of the model is that it is rooted in a transdisciplinary perspective, for it draws on a mix of knowledge from various disciplines. According to Morin and Le Moigne (1999), to properly consider a complex subject, a transdisciplinary vision is essential in order to avoid arbitrarily breaking up the systematic and multidimensional nature of the phenomenon under study. By building on teamwork models derived from occupational and organizational psychology and on theories of organizational learning and change drawn from sociology and management, the model proposed here provides practitioners and researchers with an interdisciplinary representation that has breadth and depth and is adapted to the subject under study.

The model presented here clearly makes up for shortcomings in the literature on CoPs, a field that is still largely atheoretical. There are many evaluation studies of CoPs now under

way in which it can be applied. For example, funded by the CIHR Partnerships for Health Systems Improvement Program, an evaluation of labs in five CSSSs in the Montreal area (Canada) is currently being conducted with the model (reference withheld to preserve the blind review process). Based on a multiple-case study design, the evaluation seeks to assess the implementation of the labs, analyze the effects on the participants and the organization, and identify the processes that generate these impacts. Included in the methodology are quantitative and qualitative strategies that will allow the testing of specific hypotheses related to specific parts of the model as well as validating the general theoretical formulation through the case study analytical approach. This study, which will use quantitative and qualitative strategies to assess specific parts of the model and validate the general theoretical formulation, will help significantly in advancing our knowledge of CoPs. It will also provide decision-makers with invaluable insights into how CoPs work, including the outcomes that can be reasonably expected and the organizational conditions required to help reach them (e.g., optimal mix of participants or supporting information systems).

Conclusion

Health Promotion Laboratories are an innovative professional development intervention that shares many features with the CoP model. Ongoing evaluation of this intervention will provide additional insight into its impact.

Correspondence may be directed to: Lucie Richard, IRSPUM, Université de Montréal, P.O. Box 6128, Station Centre-ville, Montréal, QC H3C 3J7; tel.: 514-343-7486; fax: 514-343-2207; e-mail: Lucie.Richard@Umontreal.ca.

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