

Complexity: a potential paradigm for a health promotion discipline

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Abstract

Health promotion underpins a distancing from narrow, simplifying health approaches associated with the biomedical model. However, it has not yet succeeded in formally establishing its theoretical, epistemological and methodological foundations on a single paradigm. The complexity paradigm, which it has yet to broach head-on, might provide it with a disciplinary matrix in line with its implicit stances and basic values. This article seeks to establish complexity's relevance as a paradigm that can contribute to the development of a health promotion discipline. The relevance of complexity is justified primarily by its matching with several implicit epistemological and methodological/theoretical stances found in the cardinal concepts and principles of health promotion. The transcendence of ontological realism and determinism as well as receptiveness in respect of the reflexivity that complexity encompasses are congruent with the values of social justice, participation, empowerment and the concept of positive health that the field promotes. Moreover, from a methodological and theoretical standpoint, complexity assumes a holistic, contextual and transdisciplinary approach, toward which health promotion is tending through its emphasis on ecology and interdisciplinary action. In a quest to illustrate our position, developmental evaluation is presented as an example of practice stemming from a complexity paradigm that can be useful in the evaluation of health promotion initiatives. In short, we argue that it would be advantageous for health promotion to integrate this paradigm, which would provide it with a formal framework appropriate to its purposes and concerns.

Keywords : complexity, paradigm, health promotion discipline

INTRODUCTION

Health promotion is the spearhead of a new public health defined, among others, by the Lalonde report and the Ottawa Charter both of which called for health promotion's emancipation from an individualistic and behavioural perspective and for the adoption of a holistic vision of health and its determinants (Breslow, 1999; Kickbusch, 2003; Bunton and Macdonald, 2004; Porter, 2007; Norman, 2009). This reinterpretation of the field and its purpose stems from the observation that human health is the fruit of complex processes that operate through numerous interactive systems (Healy, 1997; Crossley, 2001; Rootman et al., 2001; Wilson and Holt, 2001; Lessard, 2007; Norman, 2009). Health promotion which is defined more as an area for action than a discipline (McQueen, 2001, 2007), thus underpins a distancing from narrow, simplifying health approaches associated with the biomedical and psycho-behavioural models (Crossley, 2001; Bunton and Macdonald, 2004; Porter, 2007). This health approach also stands out because of certain cardinal principles such as participation, empowerment, social justice and positive health (Rootman et al., 2001; O'Neill and Stirling, 2006). Despite this distinctiveness, the absence of a consensus concerning the epistemological, theoretical and methodological stances in the field, competition with other approaches and the institutional precariousness of health promotion are threatening its development as a discipline (O'Neill, 2003; Potvin and McQueen, 2007).

This article seeks to establish complexity's relevance as a paradigm that can contribute to the development of health promotion as a discipline by providing direction and coherence to this emerging field. To this end, we will first define health promotion and outline the reasons why it cannot yet be defined as a discipline. Second, we will explore the nature of complexity in order to highlight the characteristics of the complexity paradigm. Third, we will seek to demonstrate the relevance of complexity for health promotion by matching this paradigm with several positions implicit to health promotion found through its defining characteristics. To conclude, we will present developmental evaluation (DE) as an example of practice stemming from a complexity paradigm that can be useful in health promotion.

TOWARDS A DEFINITION OF HEALTH PROMOTION

Health promotion arose from the efforts of the Lalonde report and the Ottawa Charter to establish a new perspective of health and its determinants in public health (O'Neill, 2003; O'Neill and Stirling, 2006; Norman, 2009). It is a recent phenomenon that can be perceived both as a practice and as a rhetoric (O'Neill, 2003; O'Neill and Stirling, 2006). As a field of practice specific to public health, health promotion can be understood as collective efforts to enhance and promote the health of individuals, groups or communities through an array of methods and strategies that target individuals or environments (Nutbeam, 1998; O'Neill, 2003; Green and Kreuter, 2005; O'Neill and Stirling, 2006). These efforts seek to encourage individuals, groups and communities to take charge of the determinants of their own health. Implicit in this definition of health promotion practice is a significant rhetoric based on values such as empowerment, participation, social justice and community action (McQueen and Anderson, 2001; O'Neill, 2003; O'Neill and Stirling, 2006; McQueen, 2007; Norman, 2009). A number of observers associate this rhetoric with the new public health's focus on social inequities in health which were formalized in the Ottawa Charter (Robertson, 1998): 'Health promotion focuses on achieving equity in health. Health promotion action aims at reducing differences in current health status and ensuring equal opportunities and resources to enable all people to achieve their fullest health potential' (WHO, 1986). In so doing, health promotion presents itself ideologically as 'the process of enabling people to increase control over, and to improve their health' (WHO, 1986; Nutbeam, 1998).

One of the basic characteristics of health promotion is the importance accorded to the notion of empowerment, a process through which individuals gain broader control over the decisions and actions that affect their health (Nutbeam, 1999). As a key dimension of the WHO definition of health promotion, empowerment presents itself both as a means of action and as an intervention efficiency parameter (Rootman et al., 2001; Potvin et al., 2008) and is largely fostered by participation (Mason and Boutilier, 1996; Rootman et al., 2001). Participation is, consequently, also a cardinal value of health promotion (Rootman et al., 2001). Moreover, because it legitimates the participation of individuals and groups in the attainment of their health, health promotion tends to be situated at the community level, which provides an

appropriate centre of gravity for intervention (Robertson, 1998; Green and Kreuter, 2005). Indeed, the community is the nerve centre of health promotion action which ensures the relevance of its health interventions and an active community commitment in the planning process itself (Green and Kreuter, 2005). Furthermore, health promotion relies on a positive concept of health envisaged as an everyday life resource rather than the simple absence of illness (Green and Kreuter, 2005; Raeburn and Rootman, 2006). This is a holistic, multidimensional concept of health that highlights personal and social resources along with the individual's physical abilities (WHO, 1986). This definition of health thus implies broad, intersectoral intervention and outcomes that translate into terms other than those of health (Green and Kreuter, 2005).

Despite its distinctive features, health promotion is still not a discipline and has not succeeded in attaining this status at the institutional level (McQueen, 2001, 2007; Norman, 2009). According to O'Neill and Stirling (O'Neill and Stirling, 2006), health promotion is not defined clearly enough and has not been differentiated sufficiently from similar fields to have found its place politically and academically. In fact, a discipline is usually centred on a paradigm and a received view that determines the dimensions, contents and limits of the field. However, health promotion has not developed a consistent received view because its role was defined before its theory and principles in response to changes in public health (McQueen, 2007). Potvin and McQueen (Potvin and McQueen, 2007) claim that there is still a lot of debate in health promotion, specifically 'about the epistemological posture appropriate for developing the knowledge base of health promotion and about the methodological apparatus to be deployed to produce that knowledge' (Potvin and McQueen, 2007).

We believe that complexity presents itself as a potential solution that can provide coherence and direction to this emerging field of practice in addition to strengthening several implicit positions in health promotion. The relevance of the complexity paradigm lies primarily at the epistemological and methodological/theoretical levels. From an epistemological standpoint, this paradigm could support a non-reductive, reflexive, relative conception of health and its problemization (Healy, 1997; Lessard, 2007). In health promotion, the legitimization of lay knowledge and the participation of individuals in the negotiation of health issues concerning them calls for the integration of a paradigm that foresees the importance of a comprehensive, emerging, dynamic, non-linear understanding of these issues (Labonte and Robertson, 1996; Albrecht et al., 1998; Plsek and Greenhalgh, 2001; Simpson and Freeman, 2004; Lessard, 2007). From a methodological/theoretical standpoint, complexity is characterized by a concern for an integrated, broader approach in the topics being researched (Albrecht et al., 1998; Morin and Le Moigne, 1999). Similarly, given the comprehensiveness of the health concept and the importance accorded to intersectoral action, health promotion has long been concerned with the integration of a holistic vision highlighting contextual dimensions of health problems (Stokols, 1992; MacDonald, 1998; Porter, 2007; Norman, 2009; Richard et al., 2011). In the third section of this article, we will explain in greater detail how the complexity paradigm, through its implications and prescriptions, concurs with certain implicit epistemological and

methodological/theoretical stances of health promotion and how it might contribute to establishing the formal foundation of a health promotion discipline.

TOWARDS A DEFINITION OF THE COMPLEXITY PARADIGM

Complexity thinking is a dramatic intellectual event that arose with new ways of thinking in modernity (Morin and Le Moigne, 1999; Doll and Trueit, 2010). From the mid-20th century onward, the simplification of complex problems in classical science engendered a gradual, growing dissatisfaction. There was an understanding that complex problems are not reducible to simple problems and cannot be defined by mechanistic science without important alterations in their nature. This has led a number of authors to wonder about the need to surpass traditional dogmas of order, separability, reduction and logic, espoused by Aristotle, Newton, Descartes and other philosophers of classical science (Healy, 1997; Albrecht et al., 1998; Morin and Le Moigne, 1999; Lessard, 2007; Doll and Trueit, 2010). Complexity thinking arose in response to developments in information theory, cybernetic and systems theories (Morin and Le Moigne, 1999). As Haggis (Haggis, 2010) has argued, 'complexity theories could be seen as one way of attempting to articulate some of the limits of human understanding in relation to both natural and social phenomena.' (Haggis, 2010).

Thanks to the paths carved by other fields of science interested in complex systems (e.g. natural, artificial and more recently, social systems) complexity is now more intelligible. There are variations among complexity theories, however, these share a common understanding about complex systems, their functioning and their characteristics (Keshavarz et al., 2010; Alvaro et al., 2011). In this paper, complexity is conceived as a paradigm, and defines a group of ontological, epistemological, methodological and theoretical propositions in relation to complex systems (Haggis, 2010).

In health promotion, while it has not been broached head-on, complexity is a notion that is gaining a growing legitimacy: 'Many now recognize the complexity of social structures, social change, and the complex infrastructure that derives from the context of health promotion' (McQueen, 2007). Moreover, it seems increasingly obvious that human health is a complex topic of study because it results from the interaction of numerous determinants situated at several levels, i.e. biological, individual and social (Susser and Susser, 1996; Healy, 1997; Albrecht et al., 1998; Krieger, 2001; Wilson and Holt, 2001; Lessard, 2007; Norman, 2009; Richard et al., 2011). Several authors consequently believe that new paradigms that incorporate a complex, dynamic, emerging perspective of the world should replace reductionist health approaches (Labonte and Robertson, 1996; Susser and Susser, 1996; Albrecht et al., 1998; Krieger, 2001; Plsek and Greenhalgh, 2001; Simpson and Freeman, 2004; Lessard, 2007).

Hawe et al. (Hawe et al., 2004) propose the following definition of complexity: 'a scientific theory which asserts that some systems display behavioural phenomena that are completely inexplicable by any conventional analysis of the systems' constituent parts' (Hawe et al., 2004). While somewhat incomplete, this definition does have the merit of highlighting the notions of holism and emergence (together with transformation) that best describe complexity. Acknowledging the common challenge of identifying a consensual definition (Wallis, 2008; Doll and Trueit, 2010), we propose to examine complexity by highlighting the way it differs from similar concepts and by examining some of its emerging properties. It thus seems essential to distinguish complexity from complication and chaos, two concepts with which it is often confused in the literature. Complication is characterized by a large number of interacting factors and presents itself as reducible, predictable and describable (Morin and Le Moigne, 1999; Cilliers, 2002; Norman, 2009). For some observers, complication comes down to a positivist representation of complexity insofar as it evokes an array of simple problems that can be reduced to a single solution (Morin and Le Moigne, 1999). Complexity, however, is understood as a non-exhaustively explicable but potentially intelligible system since it can be modelled (Morin and Le Moigne, 1999; Cilliers, 2002). In short, complexity is always complicated, but the opposite is not true. What is more, Morin maintains that chaos differs from complexity in that, contrary to the latter, chaos presents itself as a unorganized, unintelligible system, one that thus cannot be modelled and is indescribable (Morin and Le Moigne, 1999). Doll and Trueit (Doll and Trueit, 2010) further argue that chaos is not only unpredictable, but also non-deterministic. It should be noted that this is a general definition of chaos that is not akin to the technical notion of deterministic chaos.

It is the properties of complexity that allow us to better delineate its nature (Wallis, 2008; Keshavarz et al., 2010). First, complex systems cannot be defined according to their constituent components: the whole is greater than the sum of its parts (Hawe et al., 2009; Doll and Trueit, 2010). This is the systemic principle on which systems theory hinges (Morin and Le Moigne, 1999). Indeed, the spontaneous organization of the elements of a system generates emerging properties that cannot be deduced solely from the components (Holland, 1998; Plsek and Greenhalgh, 2001; Gatrell, 2005; Doll and Trueit, 2010; Keshavarz et al., 2010; Patton, 2011). This particularity thus calls for a holistic study approach, which concretely links the parts to the whole (Doll and Trueit, 2010). Emergence also means that we have to 'expect the unexpected', as unattended effects can occur in a complex system (Patton, 2011).

As a consequence, the behaviour of complex systems cannot be described in the form of enumerations of combinations and can only be understood within the limits of their unpredictability (Morin and Le Moigne, 1999; Plsek and Greenhalgh, 2001; Chu et al., 2003; Keshavarz et al., 2010; Patton, 2011). This unpredictability (or uncertainty) is also a result of adaptation to the environment, spontaneous organization, non-linear changes and evolution in the system (Patton, 2011). Some strategies can, however, be used to reduce uncertainty: identifying recurring patterns, taking particular account of context and history, etc. (Keshavarz et al., 2010). These characteristics thus imply the introduction of some degree of recursiveness

and indeterminism in thinking and the acknowledgement of the impossibility of causal generalizations.

What is more, complex systems are characterized by their ability to adapt to their environment in a perspective of greater efficiency, while preserving their identity (Doll and Trueit, 2010; Keshavarz et al., 2010; Patton, 2011). They are open systems that engage in exchanges with their environment (Sterman, 2006). Complex systems also have the property of being self-organizing, thus they spontaneously create coherent order out of disorder, which ultimately allows them to constantly redefine themselves and to self-regenerate (Morin and Le Moigne, 1999; Gatrell, 2005; Sterman, 2006). These characteristics of complexity call for a contextual approach of study and reaffirm the importance of surpassing determinism, reductionism and linear causality when we study a complex object. 'If the entities which are of interest to educators (...) are seen as being dynamic, continually emerging through time, and specific to local constellations of conditions (i.e. irreducibly particular, incapable of being meaningfully compressed into a model or reduced to underlying principles), then complexity presents researchers with the challenge of working out what it means to say that "knowledge must be contextual"' (Haggis, 2010).

Finally, the complex social systems involved in health promotion also have the characteristics of being nested in one another, of depending on history and culture, and more importantly, of presenting component parts (e.g. human agents) that act both intentionally with consciousness, as well as unconsciously in response to other stimuli (Haggis, 2010; Keshavarz et al., 2010; Alvaro et al., 2011). These human agents differ from one another and relate differently to each other (Jordon et al., 2010). This makes relations, context and a relativist viewpoint particularly important: 'Applying a complexity lens to our lived experiences, we now see all events, persons, diseases in terms of relations, and we see these relations encased in systems (...)' (Doll and Trueit, 2010).

TOWARDS THE INTEGRATION OF THE COMPLEXITY PARADIGM INTO HEALTH PROMOTION

Health promotion results from a shift from an individualistic perspective of health centred on the medical aspect to a broad, structuralist perspective, including actions focusing on the environment, the economy, politics to name a few (Davies and Madonald, 1998). Even if this broad focus suggests greater receptiveness to complexity in health promotion, a cursory examination of the literature in this field reveals that few authors have broached this paradigm head-on. Complexity's relevance as a paradigm in health promotion establishes itself in two ways: from the standpoint of epistemological concerns and the methodological/theoretical concerns of the field.

The relevance of complexity at the epistemological level

At an epistemological level, complexity as a paradigm necessarily requires that we go beyond ontological realism and determinism and that we move toward reflexivity, a position which coincides with several implicit stances of health promotion found through its basic characteristics and key concepts.

To acknowledge complexity is to acknowledge that observations are situated in a context and embedded in a relationship with the observer (Morin and Le Moigne, 1999). In fact, according to Morin, complexity assumes the reintroduction of the knowing subject into all knowledge since phenomena are always grasped through humankind's subjectivity (Morin and Le Moigne, 1999). This means that ontological realism, which postulates the existence of an objective reality that is independent of the observer and the context (Guba, 1990), is not an option (Morin and Le Moigne, 1999; Gatrell, 2005; Lessard, 2007). This premise also discredits the epistemological dualism that is undoubtedly linked to it (Guba, 1990).

In health promotion, the values of participation and empowerment demand the adoption of a relativistic or critical viewpoint that legitimates the experiential knowledge of individuals (Fawcett et al., 1996; Robertson, 1998) and recognizes reality as being subject to various contextual, historic and social contingencies. These positions contrast sharply with those of realism and dualism, which perceive the researcher as occupying an external position in relation to the subjects studied (Guba, 1990). The relativistic, critical and subjective approaches, on the other hand, allow access to the interpretation of reality as it is experienced by individuals themselves. Such approaches are deemed more appropriate to achieve better understanding of the complexity inherent in health questions (Labonte and Robertson, 1996; Crossley, 2001; Simpson and Freeman, 2004). 'Health promotion makes room for the stories which individuals and communities tell about their everyday experience of health, and legitimizes them as being as important to our understanding of health as statistics on morbidity and mortality rates' (Robertson, 1998). Next, because the participation and emancipation of communities are basic elements of the intervention as well as its outcomes (Potvin et al., 2008), a subjective method of grasping reality would be more in keeping with health promotion values (Labonte and Robertson, 1996). Indeed, the participation of individuals in the negotiation of health questions that concern them makes a dialogical understanding of reality in which the parties co-construct knowledge in a consensual manner all the more relevant (Labonte and Robertson, 1996). Lastly, the concept of positive health advocated by health promotion assumes a subjective understanding of the condition of individuals, which makes room for community perceptions of their quality of life: 'The subjective assessment of quality of life offers a view of a particular situation through the eyes of the community residents themselves, who share what matters to them and show where health lies in the context of their lives. Health promotion seeks to promote healthful conditions that improve quality of life as seen through the eyes of those whose lives are affected' (Green and Kreuter, 1999). In short, going beyond the ontological realism as it is advocated by the complexity paradigm could more emphatically support relativistic, critical and subjectivist viewpoints in health promotion.

This first imperative of complexity (going beyond ontological realism) also assumes greater reflexivity among researchers such that they are able to account for the influence of their own history, subjectivity and position on the construction and interpretation of knowledge (Taylor and White, 2000; Strand and Schei, 2005; Lessard, 2007). In fact, to acknowledge complexity consists in accepting some degree of uncertainty in respect of phenomena, the partiality of representations and the possibility of a multitude of perspectives, which is a distinctive feature of a reflexive approach (Labonte et al., 1999; Doll and Trueit, 2010). Generally speaking, reflexivity is the conscious examination of the professional's approach in order to update its determinants, i.e. a kind of interrogation of practice to derive from it a representation of the dynamic between the personal, the professional and the political (Boutilier and Mason, 2006). According to Bourdieu, reflexivity implies the systematic exploration of the categories of thought that delineate and predict it (Bourdieu and Wacquant, 1992). The conscious analysis of the constraints in thought appears to allow us to free ourselves from them and gain control over them to some extent (Bourdieu and Wacquant, 1992). Reflexivity seems to be a way of confronting complexity by taking into account the determinants of thought that shape the interpretation of a reality (Lessard, 2007), as much as a strategy to perceive from the other person's viewpoint in order to better understand (Kippax and Kinder, 2002).

In health promotion, at once a field of social action and an ideological discourse, reflexivity warrants closer examination since it would allow the parameters of the context and the individual motivations and values that underpin actions to be revealed (McQueen, 2007). McQueen (McQueen, 2007) states that 'complexity easily allows the introduction of a "values" perspective and base to action, thus reinforcing that component of health promotion that is ideological'. In fact, by acknowledging the individual's creative role in the conceptualization of the social, reflexivity is a facet of complexity that must not be neglected in health promotion (McQueen, 2007). Since health promotion aims at empowerment and participation, it cannot avoid a reflexive approach because this approach acknowledges a multitude of perspectives and the need to question the representations of others in order to better understand reality and reduce uncertainty (Eakin et al., 1996). The reflexivity promoted by complexity is thus in keeping with the questioning that health promotion practice demands.

Moreover, with the recognition of the complexity of a subject, determinism becomes irreconcilable with a human reality that creates and shapes itself in a partially unforeseeable, dynamic, non-linear, adaptive manner, in accordance with the properties mentioned earlier (Albrecht et al., 1998; Morin and Le Moigne, 1999; Plsek and Greenhalgh, 2001; Gatrell, 2005). For Doll and Trueit (Doll and Trueit, 2010), 'Probably the most challenging of all the characteristics of thinking complexly is acceptance of and working with ambiguity'. Morin and LeMoigne (Morin and LeMoigne, 1999) emphasize that 'the obsessive search for determinism becomes blindness. We must not seek only order but also disorder and elaborate strategies to ascertain the different forms of interplay between order and disorder' [TRANSLATION]. Complexity thus implies accepting some degree of uncertainty and indeterminism in respect of phenomena (Doll and Trueit, 2010) as well as recursive loops that make prediction and causal

attribution especially difficult. This requirement of indeterminism is in line with a notion of objects as being dependent on their environment and thus emphasizes the importance of some degree of contextualism.

Similarly, growing numbers of health promotion authors, who acknowledge the turbulence of effects through partially undetermined systems, are observing the limits of linear causality (Healy, 1997; Wilson and Holt, 2001; Gatrell, 2005; Hawe et al., 2009). Some authors such as Potvin et al. (Potvin et al., 2008) indeed perceive the health promotion intervention as a 'complex social reality that operates as a system' [TRANSLATION]. As well, health promotion interventions are defined as dynamic systems that evolve over time, especially in the case of participatory programs that develop in the course of negotiations between the stakeholders (Rootman et al., 2001; Potvin et al., 2008; Hawe et al., 2009). 'In contrast to the relatively tidy laboratory world of molecular genetics, the territory of health promotion is the community, steeped in historical and political context and consisting of intricate, fluid social relationship' (McQueen and Anderson, 2001). Simple causal attribution then becomes almost impossible because of synergies with other phenomena, secular trends present in the systems, and dynamic feedback loops (Nutbeam, 1999). 'The implication of rethinking causality in health promotion theory and aligning it to earlier as well as more recent thinking deriving from complexity is that causality is not totally knowable or perhaps even describable' (McQueen, 2007). What is more, a concern for contextualism is also a characteristic of health promotion, which makes the community the focal point of action because of the necessity of adapting to local needs and contingencies (McQueen and Anderson, 2001; Hawe et al., 2009). Participatory approaches, which arise and develop in specific communities, are intended to ensure the relevance and cultural meaning of the intervention by responding to local problems (Green et al., 1995; Green et al., 2003; George et al., 2006). The complexity paradigm would thus be especially useful to contemplate the reality of health promotion, conceived as indeterminate, contextual and co-constructed.

The relevance of complexity at the methodological and theoretical level

At the methodological/theoretical level, complexity assumes a holistic, transdisciplinary approach, toward which health promotion is already shifting, without an explicit framework.

Broadly defined, holism implies taking into account the logic of the individual as much as that of the social system to which the individual belongs (Morin and Le Moigne, 1999). Holism is thus linked to complexity inasmuch as the latter calls for a comprehensive perspective with respect to the topic of study, a perspective that allows for the assessment of the emergence, organization and interdependence of the constituent parts (Albrecht et al., 1998).

Health promotion, as it is conceptualized in the Ottawa Charter, centres on a 'socioecological' vision of health that focuses on the structural determinants of health instead of reducing health to its biological or behavioural dimensions (Breslow, 1999; Kickbusch, 2003; Porter, 2007). In fact, according to the Ottawa Charter, which underpins health promotion, '[c]aring, holism and ecology are essential issues in developing strategies for health promotion' (WHO, 1986). A comprehensive, integrating perspective according to which health is the product of the interaction between several determinants residing at different levels is, consequently, inherent in health promotion practice (Stokols, 1992; Richard et al., 1996, 2011; Stokols, 1996; Norman, 2009). Inspired by complex systems theories (Richard et al., 1996), the ecological approach is the framework that health promotion uses to take into account the higher-order structure (the environment) of which human health is a part (Hawe et al., 2009). This approach emerged in the wake of the failure of behaviourist models to take into account the complexity of health-related behaviour (Crossley, 2001). The ecological approach is central to the concepts and methods of health promotion (Green et al., 1996; Porter, 2007) and reflects its willingness to methodologically accommodate complexity, more or less successfully (Stokols, 1992, 1996; Richard et al., 1996, 2011). While enriching and broadening it, the complexity paradigm could support this desire centred on integration and holism that is already apparent in health promotion methods and theories.

Furthermore, according to Morin, complex thought must be transdisciplinary, since this offers the advantage of not breaking 'arbitrarily the systemicity (the relationship of a part to the whole) and the multidimensionality of phenomena' [TRANSLATION] (Morin and Le Moigne, 1999). While multidisciplinary concerns the study of a single subject by several sciences and interdisciplinarity focuses on transfers of methods from one science to another, transdisciplinarity concerns what is between, within and beyond disciplines (Nicolescu, 1996). Transdisciplinarity is an intellectual stance that examines the dynamic created by several levels of realities studied respectively by several disciplines (Nicolescu, 1996). In so doing, transdisciplinarity has the ability to integrate several understandings of reality, even antagonistic ones, under the guise of accepting a pluralism of perspectives. 'At the heart of the transdisciplinary framework is the anticipated emergence of a common conceptual framework capable of unifying these multiple explanations' (Albrecht et al., 1998). Its main outcome is thus the understanding of the world in its complexity through the diversity of viewpoints.

In health promotion, approaches, issues and actions are obviously multidisciplinary: 'health promotion prides itself on being eclectic and multi-disciplinary' (McQueen, 2001). In fact, health promotion is usually deemed to be a multidisciplinary enterprise whose roots extend to the boundaries of numerous fields of knowledge and research paradigms (McQueen and Anderson, 2001). Health promotion thus assumes largely defined bases anchored primarily in sociology, psychology, education and epidemiology (Bunton and Macdonald, 2004). At the theoretical and methodological level, health promotion implies contextual, dynamic, multiple approaches (Godin, 2000; McQueen and Anderson, 2001). The adoption of the complexity paradigm in health promotion would thus demand that we transcend a multidisciplinary approach and

instead encourage a transdisciplinary perspective, which would incorporate different explanations and contribute to enhancing the understanding of health issues. As noted by Albrecht et al. (Albrecht et al., 1998): 'We advance complexity theory as a potentially powerful unifying construct for understanding the nature of complex, dynamic systems, such as those in which health problems are invariably embedded'. A transdisciplinary perspective, such as the one that complexity prescribes, would indeed allow better integration of learning from various disciplines in the guise of a unifying intellectual stance.

TOWARDS A COMPLEX HEALTH PROMOTION PRACTICE

Interventions in health promotion are of a dynamic, contextual and community-based nature (Potvin and Goldberg, 2006; Keshavarz et al., 2010). Such interventions are largely interdependent with a local environment because they are rooted in local concerns and abilities (Potvin and Goldberg, 2006). This renders scarcely relevant conventional evaluations, often based on rigid criteria of effectiveness and aimed at generalization. DE is a type of evaluation based on the complexity paradigm that might be useful in health promotion: 'Informed by systems thinking and sensitive to complex nonlinear dynamics, DE supports social innovation and adaptive management' (Patton, 2011). In fact, DE is an evaluation option centred on users that seeks to support the development of innovative programs, often characterized by a dynamic, unpredictable nature, open-ended objectives and a flexible model (Patton, 1994, 2006, 2008, 2011; Gamble, 2008). In contrast to an evaluation approach that seeks to produce summative judgements on the effectiveness of an intervention, the DE approach produces a specific contextual understanding that informs the innovation under way (Patton, 2008). To this end, a significant feedback component, which uses an ongoing collection and analysis process to guide the development of the intervention, is inherent in the DE (Patton, 2008). The integration of the evaluator into the project development team is essential to foster discussion on the evaluation process and facilitate decisions based on data during the project development process. DE thus represents an alternative for evaluators wishing to better grasp the complexity of innovative programs while preserving their essence (Patton, 2008, 2011).

The basic principles of DE coincide with those of the complexity paradigm. In keeping with the transcending of ontological realism prescribed by the complexity paradigm, DE seeks to include the evaluator in the project team to enable him/her to grasp the reality of the project from within. Thus, in a logic of openness and relativism, the evaluator and the team work together to design an evaluation process that respects the organization's principles and objectives (Patton, 2002, 2008). By virtue of its integrative, participatory form, DE necessarily recognizes the multiplicity of representations and the diversity of the participants' experiential knowledge. Moreover, in line with the reflexivity dimension of complexity, DE supports the project team's continuous learning (Patton, 2011). In fact, DE establishes reflexive processes that foster the interveners' ability to assimilate the knowledge produced by the evaluation as well as to react to such knowledge (Patton, 2002, 2008). In addition, because of its contextual nature, DE seeks to produce knowledge linked to its context that constantly enlightens the innovators (Patton, 2002, 2008). This type of evaluation thus takes into account local parameters of causality ('centres on

situational sensitivity') and does not lock itself into a linear determinism (Patton, 2011). As a matter of fact, DE recognizes complexity from the outset by conceiving the evaluation as an instrument helping to grasp the dynamic of the system, interdependence and emerging interconnections (Patton, 2011). This type of evaluation seeks an adaptation to complex situations by modifying the program model in response to changing conditions and to the new understandings that emerge from the evaluation process. Consequently, DE does not seek to control the ambiguity and uncertainty that are the corollary of complexity but endeavours to react strategically to it (Patton, 2002, 2008). The open-ended, dynamic nature of this type of practice thus leads it to adopt feedback logic and regulate its actions on its effects while preserving sustained organizational and programmatic flexibility.

CONCLUSION

In light of the arguments presented in this article, the complexity paradigm could prove to be fertile ground to foster the development of health promotion as a discipline. Whether from the standpoint of its epistemological or methodological/theoretical prescriptions, complexity pertinently meets the implicit stances of health promotion. Consequently, it would certainly be advantageous for health promotion to integrate this paradigm that would provide it with an appropriate framework for its purposes and concerns. In so doing, it could build an appropriate knowledge base, better define its purposes, resolve numerous internal battles, and better grasp the challenges that it is facing.

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