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Global Health Promotion 2009 16: 39

DOI: 10.1177/1757975908100749

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Elaborating on systems thinking in health promotion practice

Jenneken Naaldenberg¹, Lenneke Vaandrager¹, Maria Koelen², Anne-Marie Wagemakers¹, Hans Saan³ and Kees de Hoog[†]

Abstract: Health and well-being are the result of a series of complex processes in which an individual interacts with other people and the environment. A systematic approach ensures incorporation of individual, ecological, social and political factors. However, interactions between these factors can be overlooked within a systematic approach. A systemic approach can provide additional information by incorporating interactions and communication. The opportunities of a systems thinking perspective for health promotion were investigated for this paper. Although others have also made attempts to explore systems thinking in the field of health promotion, the implications of systems thinking in practice need attention. Other fields such as agricultural extension studies, organizational studies and development studies provide useful experiences with the use of a systems thinking perspective in practice. Building on experiences from these fields, we give a theoretical background in which processes of social learning and innovation play an important role. From this background, we derive an overview of important concepts for the practical application of a systems thinking perspective. These concepts are the structure of the system, meanings attached to actions, and power relations between actors. To make these concepts more explicit and reduce the theoretical character of systems thinking, we use an illustration to elaborate on these concepts in practice. For this purpose, we describe a health promotion partnership in The Netherlands using the concepts structure, meaning and power relations. We show how a systems perspective increases insight in the functioning of a partnership and how this can facilitate processes of social learning and innovation. This article concludes by identifying future opportunities and challenges in adopting systems thinking for health promotion practice. A systems perspective towards health promotion can help projects reaching a more integral and sustainable approach in which the complex nature of health promotion processes is supported. Practical applications of systems thinking are necessary to adapt this perspective. (*Global Health Promotion*, 2009; 16 (1): pp. 39–47)

Key words: health promotion, complexity, collaboration, systems thinking

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(This manuscript was submitted on March 20, 2008. Following blind peer review, it was accepted for publication on October 30, 2008.)

Global Health Promotion 1757-9759; Vol 16(1): 39–47; 100749 Copyright © SAGE Publications 2009, Los Angeles, London, New Delhi, Singapore and Washington DC, DOI: 10.1177/1757975908100749 <http://ghp.sagepub.com>

Introduction

For health promotion to be effective, health, behaviour and the wide scale of individual and environmental determinants need to be included and approached from different angles at the same time (1). Therefore, health promotion strategies increasingly make an effort to incorporate social, ecological and political factors, resulting in a broad perspective on health and health promotion (2). Health promotion processes ask for a mix of interventions and for co-operation between people and organizations from multiple sectors within a community (1). This makes health promotion not a straightforward *technical process* but a complicated and diffuse *social process* in which stakeholders have to work together and share information, ideas and decisions. Systematic approaches ensure attention for all factors in planning and evaluating health promotion efforts (3–5). Interactions between these factors play an equally important role but can be easily overlooked in a *systematic* approach (6,7). A *systemic* approach, like systems thinking, incorporates the interactions between relevant factors providing additional information for health promotion planning and evaluation.

The opportunities of a systems thinking perspective for health promotion were investigated for this paper. Although others have made attempts to explore systems thinking in the field of health promotion (8–12), more attention for the practical implications of systems thinking for health promotion is important (13). Other fields such as agricultural extension studies (14,15), organizational studies (16–20) and development studies (21,22) are more experienced with systems thinking in practice. This paper uses knowledge from these fields to create a more practical orientation for systems thinking in health promotion practice. For this purpose, three key constructs for a systems approach in practice are identified within a theoretical background. To enhance the practical orientation, these constructs will be illustrated with a practical case.

Systems thinking and complexity

Symptoms of ill health are the result of different processes leading towards this state of ill health. It is understood that these processes are influenced by

physical, social, mental and ecological factors. These influences do not occur one at a time, but continuously change and affect each other, creating a complex network of interaction and communication. Systems thinking is about incorporating the whole of a system and the relationship between the parts instead of isolating the parts that make up this whole. The context, circumstances and environment of a system play an important role in systems thinking. This rationale of systems thinking fits nicely with the notion that effective health promotion needs to do justice to the complexity of health and that it has to address many actors and factors on multiple levels at the same time (1,8,23).

The complexity of a system has implications for how the system functions and how problems, solutions and changes appear within the system. This can be addressed by defining the level of complexity of a system. The more interactions between parts of the system, the more complex a system becomes (15,18). Less complex, technical systems are well defined and often referred to as hard systems. Problems are easy to identify and can often be solved by using a reductionist approach. The role of communication is reduced and structuralized. In these kinds of situations usually a few people are involved, there are few complications and there is agreement on what defines the problem and how to improve the situation. When systems get more complex due to more parts, actors, interactions and communication, the origin of problems gets harder to identify. Generally, problems have multiple causes, which in turn can be solved in many different ways. Problems are often ill defined and “fuzzy” in nature. These kinds of soft systems involve several individuals or groups with their own interpretations and cultural considerations, and are also referred to as social systems. Such systems require an approach with a more holistic nature (16,18). A soft systems approach moves away from working with the idea of an obvious problem that requires a solution. It instead uses the idea of a situation that by some people, for various reasons, could be seen as problematical and needs to be improved. A hard systems approach asks to identify the main problem and the best solution. A soft systems approach works with the idea that in order to change a situation that is perceived as undesirable the whole system needs to be taken into

account. Instead of fixing one component of the system, the whole system moves forward, creating a systems innovation. Changes reached in this way are more sustainable and prevent short-term solutions becoming part of the problem by avoiding a focus on symptoms only.

Innovations and social learning

A principal goal for health promotion is to bring changes at the individual level as well as in the social and physical environment, and moving the whole system forward instead of fixing one component. In fact, this could be seen as systems innovations. Innovations require interactions among actors instead of individual activities alone. Therefore, innovations can be seen as the outcome of a process of mutual learning between actors in a system (14). This kind of learning is not learning from books or lectures, but it emerges from experiences and interactions during which differences in goals, values, perceptions, knowledge and points of view are made explicit and are questioned so that actions can be taken towards solving the shared problem or shared goal. These kinds of active learning processes lead to a deeper understanding about how complex processes work and how improvement can be reached in terms of: 1. insight into the system's performance, constraints and opportunities; 2. identification of opportunities for interventions aimed at innovation; 3. creating awareness among actors about constraints and opportunities; and 4. identifying actors who can make use of opportunities and overcome constraints (14,15,22,24).

Important concepts of social systems

To foster learning and innovations, insight into the system and its current situation are necessary. Gaining insight into a social system (like health promotion) is difficult because of its complex and changing nature. Methods to develop a more complex understanding of the situation are needed. Examples can be found in soft system methodologies (14,16–18) and critical system heuristics (10,19,20). Three constructs play an important role within both critical systems heuristics and soft systems methodologies and are also found in other sources concerning social systems and systems

thinking: structure, meaning and power relations. These constructs will be used to translate practical knowledge on systems thinking from other fields for use in health promotion.

Social systems are so-called “open systems”. This means that the system interacts with its environment and responds to changes within and outside the system. The system adapts to its environment, creates learning and evolves towards new patterns of behaviour (14). These abilities make the system's *structure* an important concept. The actors within a social system contribute from different backgrounds and therefore have different interpretations of the existing problems, set goals and activities within the system. To manage these differences and create learning opportunities, they can be discussed and made explicit (18). Therefore, *meaning* also plays an important role in social systems. Finally, conditions for such a debate on interpretation in an open environment are not always present. Actors can influence each other and the system by using resources. This creates *power relations* that can affect the outcome of debates and can result in situations in which stakeholders have unequal input in discussion or unequal access to resources. This influences the ability of a system to create learning and systems innovations and, if neglected, could lead to a status quo (15). In the following sections we will address the concepts of structure, meaning and power relations and how discussing these concepts can be used for gaining insight into social systems as well as facilitating learning and systems innovations in practice.

Structure

Because of the changing and complex nature of social systems, they often lack a physical structure. A number of actors create the system through patterned activities that are directed towards a shared, common goal. Social systems can be dissected into several subsystems. Each subsystem has a stronger cohesion than the larger system to which they contribute (16,18,25). Who is considered to be a member of the system and gets involved in its activities is often an arbitrary decision. It is important to know on what basis these kinds of decisions are made. For example, a consortium between universities often has no physical building: its structure is defined by the shared actions of the

universities. Universities within the consortium are also systems on their own and can be divided into subsystems of different departments and chairs. Specialized knowledge, matching research projects or shared funding could be reasons for universities to participate in a consortium. The following questions give an idea of how a systems structure can be discussed: who should be involved, what expertise is needed, what are indicators for success, what defines the target group, which view of the situation is central, who are the problem owners, who are potential problem solvers and who is in the position to change the situation (16,20)?

Meaning

Actors in a social system share a collective goal, but they also have their own goals and their own perceptions, routines and values. All of this influences the meaning that they attach to actions and issues within the system (11,16,18,25). The significance of meaning and interpretation in understanding the social world is described in interactionist theories (26,27). Three basic assumptions underpin interactionist theories. First, people act on the basis of the meanings that things or actions have for them. Second, meanings arise in the process of interactions between individuals. Third, meanings are constructed and modified by an interpretive process that is constantly changing, depending on the context of the individual. In a system with actors from different backgrounds, it is important to acknowledge that actors have different values, routines, norms and different reasons to be part of this system. The shared goal is often not the same as the individual or professional goals. For example, within a health promotion project actors represent different organizations and sectors, for instance community health service, local health and well-being organizations, and commercial organizations. Questions that can be used to explore the differences between actors are, for example, what is our value base, what is our goal, how do we measure success, who should benefit from our actions and what are our roles, norms and values (16,20)?

Resources and power relations

Actors have their own specific resources that they can decide to contribute to the system. These

resources may consist of policy preferences, strategic experiences, manpower, methods and materials, knowledge, finances, reputation, linkage and leadership (28). The possession or need for certain resources influences interdependency between actors and consequently power relations within the system (11). In resource dependence theory Pfeffer and Salancik (29) argue that organizations will establish relations with other organizations if they consider themselves dependent on them to reach their goals. In this way, relations are established, altered and even terminated (11). Soft systems theory addresses power relations not by asking what exactly power is, but by focusing on the fact that every person acting in a social system has a sense of what needs to be done to influence people, to cause things to happen or to stop a course of action in order to change significantly the direction of actions (16,18). Meaning and structure affect the use of resources and power relations. The background of each actor defines the meanings and perceptions about the actions within the system. Based on this, an actor judges whether actions are favourable or unfavourable. If actions are judged as favourable, actors are likely to contribute resources to the system. If actions are judged as negative, actors can use resources to change the course of actions within the system (11). Questions that discuss power relations that influence the system are: what are sources of control, who should make decisions, what can actually be influenced, what cannot be influenced, what are resources that produce power relations within the system, how are these resources obtained, protected and shared and what underlying mechanisms influence this process (16,20)?

Health promotion programme collaboration as an illustration

Talking about social systems without a practical reference can become very abstract. Therefore, the applicability of the concepts described above will be illustrated with an example of a partnership between Wageningen University and the Community Health Services GGD Gelre-IJssel in The Netherlands. Policy and practice work together in this collaborative with research, to improve the health of the elderly in the Gelre-IJssel region. This partnership is one of nine “academic collaboratives” that are financed by

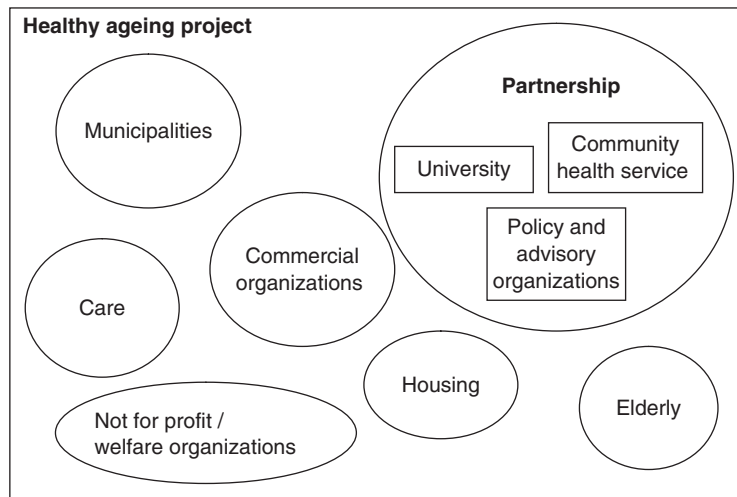


Figure 1. Illustration of possible actors and subsystems

The Netherlands Organization for Health Research and Development (ZonMW) as a part of a national science-practice interaction programme. Within the healthy ageing programme, several actors from multiple sectors work together on the shared goal of healthy ageing. Figure 1 gives a simplified summary of this system in which the partnership is a subsystem. Members of the partnership ($N = 15$) were interviewed about topics that are important for health, for potential interventions and for collaborative processes. The interviews were analysed for the concepts structure, meaning and power relations. Outcomes of this analysis are not empirical evidence for these concepts, but are used to illustrate the concepts in practice in order to make them more explicit and to reduce the abstract character of systems thinking.

Structure

The partnership does not have a physical structure in terms of having its own building or office. Some partnership members work at the university in the field of epidemiology or health promotion and at the Community Health Services as epidemiologists or health promotion professionals. Other members work for research, policy and advisory agencies at the municipal and national levels. Their

collective actions within the partnership constitute this social system. With a project that focuses on healthy ageing at the municipal level, the partnership becomes part of the existing systems on ageing within the municipalities (Figure 1).

The partnerships system itself consists of subsystems that represent different fields such as research, policy and practice. Each of these fields contains subsystems as well. For instance, the research system can be divided into the university, the funding organization and other academic collaborative centres in The Netherlands. Subsystems are also found within the university: for example, the different research disciplines involved: epidemiology, health promotion, sociology and communication sciences. The policy system can be divided into national policy, regional policy and local policy, each with a political and bureaucratic layer. Another distinction can be made between different areas within policy that are important to healthy ageing, such as environmental and housing policies, health care policies and prevention policies. Within the practice field, community health services, organizations providing for the elderly and health care organizations play a role. Commercial initiatives and, last but not least, the elderly themselves who have their own social system of family, friends and relatives are important as well.

Although members all agreed on the main objectives of the project, the interviews showed how partnership members held different views on which stakeholders should be actively involved in the healthy ageing system. According to some, the focus should be on the perspectives and routine approaches of organizations and municipalities, while others want to give more attention to the perspective of the elderly themselves. Discussion of these outcomes with members of the partnership showed that different foci are mechanisms that draw boundaries in the system. Some partnership members held a broad perspective in which not only health education was the focus but also provisions, facilities and services. Other members were inclined to be more restrictive and wondered about who was responsible for what. They questioned whether it is possible anyway to influence happiness and well-being. In their opinion the aim should be on more concrete health determinants, which can be influenced and measured. These results show that although all members agreed on the initial framing of the main goal, they had different views on what the focus should be on, who should be involved and the kind of knowledge that is needed: practical or scientific? Discussion showed that the meanings and perceptions of actors influence boundaries. Existing physical structures also play an important role in the systems structure. For instance, two research departments are contributing from the university. Due to existing physical structures these departments do not share buildings, which constantly strains informal contacts between researchers and therefore limits opportunities to create the basis of shared understanding and respect in daily exchanges.

Meaning

The background of each participant influences the perceptions about the system, the contributions needed and the expectations regarding actions and outcomes. Routines and norms from university researchers and community health service professionals strongly influence expectations about the results of the project, about the type of actions that should lead towards these results and, as showed earlier, how boundaries are drawn. Although all partners in this partnership agreed to work together on the project “healthy ageing”, expectations about roles and responsibilities, about results and about

actions to be taken sometimes even conflict. Health promotion professionals within the partnership tend to favour a more participative design of the project, based on action research. Epidemiologists on the other hand have a different perspective on scientific research in which controlled trials play an important role. By making expectations explicit, sharing visions and sometimes working together with an “agree to disagree” philosophy, collaboration is facilitated. Researchers and practical professionals also differ on opinions about when the project will be successful and what results are relevant. Researchers expect results in terms of significant differences over a large period of time, whereas professionals are also interested in experiences from participants and short-term successes. In the scientific field, publications and presentations at conferences are important whereas professionals feel that the pressure to publish could take over the course of actions within the project in which researchers participate.

Power relations

Different power relations can be distinguished within the partnership. By including scientific research in the project, standards for scientific publications and research protocols need to be considered. This may conflict with everyday practice of health promotion in which pragmatic decisions sometimes need to be made. Every participating subsystem has its own hierarchical structures and routines defining responsibilities and power for decision making. However, these routines become less clearly defined within the new structure. As a result, it is not always clear who has a voice in decision making, how tasks should be divided and who to approach with certain issues. Explicit scientific knowledge is positioned superior to tacit and experience-based knowledge. This influences the way professionals contribute to the system and how they define their position compared to researchers. Explicit knowledge is an important resource within this system, and partners need to be aware of the challenge to make tacit knowledge explicit. Existing routines of epidemiologists and health promotion professionals, even if both are working at the community health services, differ largely. Due to diversity in professional self-definition and working preferences, collaboration can become difficult.

Learning

Confrontation creates confusion and is an opportunity for clarification. Of course it is very enriching to have different views within a project, but when they are not made explicit they could work more against each other than enrich each other. By discussing these different views, the interlocutors set in motion a learning process that creates a way to combine different views and leads to an innovative project. Things do not happen because some good ideas have been developed, data were analysed or people are put together and are supposed to collaborate. Active facilitating and guiding a collaboration initiative will increase the chance of successful collaboration and of desired outcomes for all stakeholders. Existing structures, meanings and power relations can inhibit or facilitate learning processes. In the described example, physical distance between researchers prevents daily contact, differences between scientific and professional goals can be conflicting and the value of explicit knowledge has a large influence on the course of action. By challenging these issues, solutions can be found or at least these challenges can be taken into account. For the described partnership this resulted in a central workplace where researchers and professionals meet and have personal and informal contacts. Core researchers and professionals have meetings in which opportunities and constraints for combining scientific research and practical applications are discussed and combined into a shared planning. These meetings also pay attention to ways in which tacit knowledge can be made explicit in the inventory of issues, and in the implementation and evaluation of the healthy ageing project. Another result is an “agree to disagree” standpoint towards differences in scientific orientation (action research and experimental designs); this means researchers can now focus on ways in which the best of both worlds can be incorporated into the design.

Conclusion and discussion

Using systems thinking in health promotion means attention for interactions, and facilitating learning and innovation. This is strongly influenced by processes in which the system's structure, meanings and power relations play an important role. In

order to create a learning environment and opportunities for whole system innovations, the influence of all three constructs needs to be discussed and taken into account. However, clarification of these constructs is not the central activity when using a systems perspective. When actors debate these constructs among each other, this stimulates the creation of a common ground and helps to create sustainable changes and innovations. The implicit functioning of the system is made explicit by these kinds of discussions, and a shared learning process is set in motion. The purpose of making the implicit explicit so that it can be debated and contested is not new. Poland and Green (30) discuss that, for many critical theorists (31) and proponents of critical pedagogy (32), emancipation begins with the unmasking of power. They seek this unmasking through emergence of a renewed critical awareness of how ideas that are taken for granted are socially constructed, and embedded in power relations, and support the status quo. This awareness, which opens up new possibilities of thought and action, is seen as a prerequisite for change.

An approach in which the whole system is taken into account has implications for all phases of a health promoting project. Since each actor influences learning and innovation, all actors including researchers, policy makers, professionals and the targeted public, should have a contribution in the different phases of the process. This means moving from the dissemination of innovations designed by few, to co-creation of innovations by the whole system. This fits the health promotion principles of a broad approach, participation and empowerment. Notably, a systems approach differs from a systematic approach. Where a systematic approach pays attention to different subcomponents and mechanisms of change, a systems approach adds interaction between components and context of change to the equation. This has implications for the inventory of issues as well as for the way interventions are designed, implemented and evaluated.

The assumption that change and innovation can be planned in advance is challenged by a systems perspective. For innovation and learning processes to be productive, goals and plans need to be updated continuously on the basis of new knowledge, experiences and information. If not, alternatives are overseen and at the same time successes

might go unnoticed, making a truly innovative project a failure because it did not meet the predefined objectives. Moreover, projects and interventions take place in social systems with many actors from different backgrounds. A focus on predefined objectives might result in measurable output but ignores the underlying mechanisms and context in which these outputs are created and in which complex processes influence these outcomes. Measurement of successes of interventions following a systems approach should therefore use multi-method evaluations combining the use of quantitative and qualitative approaches (6,15). Recent literature on health promotion supports the use of multi-method approaches and realistic evaluation methods (4,5,33,34).

A systems approach towards health promotion can help health promotion projects to reach a more integral and sustainable approach. Discussing the identified constructs can be used to facilitate learning and innovation processes. More research on how systems thinking and soft systems methodologies can be applied in health promotion practice can give insight into how systems thinking can be useful for health promotion projects, not only in theory but especially in practice. Without the practical application of a systems approach, systems thinking will remain abstract and theoretical. To make systems thinking truly valuable for health promotion would be in itself a “systems innovation” for which we need the “learning experiences” only practice can offer.

Acknowledgement

This study is part of the “healthy ageing” project of Academic Collaborative Centre AGORA, funded by: The Netherlands Organization for Health Research and Development ZonMW (project number 50–50400–98–008). The authors wish to thank all members of AGORA for contributing to the interviews and Lynne Kennedy and Elisabeth Fosse for correcting an earlier draft of this paper. We also thank the referees for their constructive comments on a concept version of this paper.

References

1. Koelen MA, van den Ban AW. Health education and health promotion. Wageningen: Wageningen Academic Publishers; 2004.
2. Green LW, Kreuter M. Health promotion planning: an educational and ecological approach. Boston, MA: McGraw-Hill; 2005.
3. Bartholomew K, Parcel G, Kok G, Gottlieb N. Planning health promotion programs: intervention mapping. San Francisco, CA Jossey Bass; 2006.
4. Rootman I, Goodstadt M, Hyndman B, McQueen DV, Potvin L, Springett J, Ziglio E. Evaluation in health promotion: principles and perspectives, vol. 92. Copenhagen: WHO Regional Publications; 2001.
5. Tones K, Green J. Health promotion: planning and strategies. London: Sage; 2004.
6. Koelen MA, Vaandrager L, Colomer C. Health promotion research: dilemmas and challenges. *J Epidemiol Community Health*. 2001;55(4):257–62.
7. Tones K. Evaluating health promotion: a tale of three errors. *Patient Educ Couns*. 2000;39(2–3):227–36.
8. Best A, Moor G, Holmes B, Clark PI, Bruce T, Leischow S, Buchholz K, Krajnak J. Health promotion dissemination and systems thinking: towards an integrative model. *Am J Health Behav*. 2003;27 Suppl 3:206–16.
9. Dooris M. Healthy settings: challenges to generating evidence of effectiveness. *Health Promot Int*. 2006;21(1):55–65.
10. Midgley G. Systemic intervention for public health. *Am J Public Health*. 2006;96(3):466–72.
11. Van Raak A, Paulus A. A sociological systems theory of interorganizational network development in health and social care. *Systems Research and Behavioral Science*. 2001;18(3):207–24.
12. Trochim WM, Cabrera DA, Milstein B, Gallagher RS, Leischow SJ. Practical challenges of systems thinking and modeling in public health. *Am J Public Health*. 2006;96(3):538–46.
13. Paton K, Sengupta S, Hassan L. Settings, systems and organization development: the Healthy Living and Working Model. *Health Promot Int*. 2005;20(1):81–89.
14. Engel PGH. Facilitating innovation: an action-oriented approach and participatory methodology to improve innovative social practice in agriculture. PhD Thesis. Wageningen: Wageningen University; 1995.
15. Leeuwis C, van den Ban A. Communication for rural innovation: rethinking agricultural extension. Oxford: Blackwell Science; 2004.
16. Checkland P. Soft systems methodology in action. Chichester: Wiley; 1990.
17. Checkland P. Systems, thinking, systems practice. Chichester: Wiley; 1999.
18. Checkland P. Soft systems methodology: a thirty year retrospective. *Systems Research and Behavioral Science*. 2000;17(S1):S11–S58.
19. Ulrich W. Critical heuristics of social systems design. *Eur J Oper Res*. 1987;31(3):276–83.

20. Ulrich W. Critical systems heuristics in social design. In: Flood RL, Jackson MC, editors. *Critical systems thinking: directed readings*. Chichester: Wiley; 1991. p. 103–15.
21. Groot AE. *Demystifying facilitation of multi-actor learning processes*. PhD Thesis. Wageningen: Wageningen University; 2002.
22. Groot AE, Maarleveld M. *Demystifying facilitation in participatory development*, vol. 89. Londen: lied; 2000.
23. Best A, Stokols D, Green LW, Leischow S, Holmes B, Buchholz K. An integrative framework for community partnering to translate theory into effective health promotion strategy. *Am J Health Promot*. 2003;18(2):168–76.
24. Morgan G. *Images of organization*. Beverly Hills, CA: Sage; 1986.
25. Kraaijenbrink J. *Towards a systemic model of knowledge integration*. PhD Thesis. Enschede: University of Twente; 2006.
26. Benzies KM, Allen MN. Symbolic interactionism as a theoretical perspective for multiple method research. *J Adv Nurs*. 2001;33(4):541–7.
27. Burrell G. *Sociological paradigms and organisational analysis*. London: Heineman; 1979.
28. Saan H, de Haes W. *New health promotion framework*. (Only available in Dutch: *Gezond effect bevorderen*.) Woerden: NIGZ; 2005.
29. Pfeffer J, Salancik GR. *The external control of organizations: a resource dependence perspective*. New York: Harper & Row; 1978.
30. Poland BD, Green LW. *Settings for health promotion: linking theory and practice*. Thousand Oaks, CA: Sage; 2000.
31. Habermas J. *Legitimation in crisis*. Boston, MA: Beacon; 1973.
32. Freire P. *Pedagogy of hope*. New York: Continuum; 1995.
33. Pawson R. *Evidence-based policy, a realist perspective*. London: Sage; 2007.
34. Pawson R. Evidence-based policy: the promise of “realist synthesis”. *Evaluation*. 2002;8(3):340–58.