

# **Healthy aging in complex environments**

Exploring the benefits of  
systems thinking for  
health promotion practice

Jenneken Naaldenberg

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# Healthy aging in complex environments

Exploring the benefits of systems thinking  
for health promotion practice

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# **ABSTRACT**

## **Background**

Many different stakeholders and contextual factors influence the success or failure of health promotion activities. Conventional approaches and evaluation designs underlying health promotion interventions, often explicitly take contextual variables out of consideration by controlling them. In doing so, relevant information about why a project was successful or failed to reach success remains invisible and 'black boxed'. Next to this, in health promotion practice, control over contextual variables often is not possible.

## **Aim**

Given the complexity of health promotion practice, research approaches often do not fit the realities of practice. As a result, health promotion activities are not always experienced as meaningful by all stakeholders involved. This thesis aims to appreciate the complex environment in which health promotion takes place by applying a systems thinking perspective to healthy aging in order to contribute to more robust strategies and interventions to support the aging population.

## **Methods**

Systems thinking aims to include a diversity of viewpoints on an issue. Therefore, to be able to answer the research questions, multiple methods were required. A combination of literature review, semi-structured and open interviews, interactive workshops, case study and survey research was used. Different sources for data collection included the aging population, local and national stakeholders, and AGORA project members.

## **Results**

Part I of this thesis concludes that a systems thinking approach strengthens health promotion by 1) including diverse stakeholder perspectives, 2) explicitly addressing contextual factors, and 3) co-creating solutions with all involved.

Following this conclusion, Part II addressed the application of systems thinking at the local level by investigating different stakeholders perspectives on healthy aging. Results show how there is a discrepancy between the way aging individuals experience healthy aging as an integral part of everyday life and the way services and interventions are presented with a focus on isolated health themes. Local healthy aging strategies can benefit by taking into account an assets based approach that better matches aging persons' perspectives. Next to this, collaboration between local stakeholders can be facilitated when shared issues are made visible and contextual preconditions are taken into account.

Since the operationalization of systems thinking in health promotion can benefit from learning experiences with application in practice, findings from Part II were discussed

in interactive presentations and workshop formats within participating municipalities. This resulted in the co-creation of a model to facilitate collaboration and the co-creation of an intervention through application of this model. The salutogenic concept Sense of Coherence was identified as a promising concept to operationalize systems approaches in health promotion practice. It was therefore expected that quantitative measurement of SOC could provide useful information for both the development and evaluation of health promotion. The OLQ-13 scale to measure Sense of Coherence was therefore investigated for its psychometric properties. Results indicate difficulties with the use of this scale in aging populations. Deleting two items from the original 13 items, improved the functioning of OLQ.

## **Conclusion**

The importance of the fact that health issues and possible intervention strategies are perceived differently by involved actors was argued within this thesis. Research is one amongst many stakeholders and a systems thinking approach implies linking all kinds of actors in order to enable co-creation of projects. Consequently, the definition of health risks, health determinants, and possible intervention effects have to be verified in both scientific research and everyday practice.

Strategies to improve health are context sensitive, and consequently, certain strategies may not work in some settings whereas they function perfectly well in others. Measurement of successes of interventions should therefore use multi-method evaluations combining the use of quantitative and qualitative approaches to gain insight in the 'black box' of why an intervention failed or was successful. If not, alternatives are overlooked and at the same time successes may go unnoticed.

# Contents

<b>Chapter 1</b>	General introduction	<b>9</b>
<b>Chapter 2</b>	Elaborating on systems thinking in health promotion practice	<b>31</b>
<b>Chapter 3</b>	Beyond bridging the know-do gap: an innovation systems perspective on the public health and health promotion sector in The Netherlands	<b>45</b>
<b>Chapter 4</b>	Aging populations' everyday life perspectives on healthy aging: new insights for policy and strategies at the local level	<b>75</b>
<b>Chapter 5</b>	Coordinated action for healthy aging: comparing local stakeholder perspectives within three different contexts	<b>97</b>
<b>Chapter 6</b>	Sense of Coherence in local practice: research–practice interaction	<b>117</b>
<b>Chapter 7</b>	Psychometric properties of the OLQ-13 scale to measure Sense of Coherence in a community-dwelling older population	<b>133</b>
<b>Chapter 8</b>	General discussion and conclusion	<b>149</b>
	Appendix I	<b>171</b>
	Appendix II	<b>175</b>
	Summary	<b>187</b>
	Samenvatting (Summary in Dutch)	<b>193</b>
	Dankwoord (Acknowledgements)	<b>199</b>
	About the author	<b>203</b>





# Chapter 1

## General introduction



## INTRODUCTION

The aim of this thesis is to appreciate the complex environment in which health promotion takes place by applying a systems thinking perspective to healthy aging. The results aim to contribute to more robust strategies and interventions, resulting in innovations that help to support the aging population.

This introductory chapter first provides a background to healthy aging and health promotion. Systems thinking is discussed as a theoretical approach that appreciates complexity. Next, the three main focus areas of this thesis are introduced: 1) a systems theoretical approach to health promotion; 2) the complex practice of healthy aging; and 3) the operationalization of new insights in health promotion practice. The subsequent section elaborates the research setting and methodological considerations. Finally, this chapter ends with the rationale and outline of the thesis.

### Aging population and policy challenges

In December 2010, a press release from the central bureau for statistics (CBS) stated that 25% of the Dutch population would be 65 years or older by 2060 ([www.cbs.nl](http://www.cbs.nl)). All over Europe, the proportion of individuals aged over 65 will rise rapidly to around 20% in the coming 10 years. Furthermore, this group itself is aging, since people tend to live longer and the proportion of individuals aged over 80 is increasing (World Health Organization, 2002). This means that policymakers at local, national, and international level now face the challenge of supporting this aging population to retain their vitality and independence (Alongi, Benson, Harris, Moore, & Aldrich, 2009; Räftegård Färggren & Wilson, 2009; World Health Organization, 2002).

Table 1.1 provides an overview of key concepts in three policy documents, from Europe, The United States of America, and The Netherlands, addressing the aging population. Concepts such as independence, participation, and quality of life stand out in these documents, indicating that healthy aging is seen as more than longevity or a good health status alone.

In The Netherlands, municipalities have the task of controlling, promoting, and protecting the health of inhabitants. Furthermore, the introduction of the *Social Support Act* (Wet Maatschappelijke Ondersteuning) delegates many responsibilities for providing support and facilities to aging and disabled individuals to the local level (Tjalma-van den Oudsten, Bleijenberg, Kaspers, & Boom, 2006). Livability, participation, and mobility are main issues in this act. Although responsibilities relating to healthy aging are delegated to the local level, local policymakers are hardly the only actors responsible and active concerning issues of aging populations.

Actors such as members of voluntary organizations representing seniors, housing, urban planning, welfare, and health and social service professionals are necessary to support aging populations in an efficient and effective way. In addition, the importance of participation in the various policy acts advocates the active involvement of older people

**Table 1.1** Healthy aging policy, key concepts

Healthy ageing in Europe: lessons learned and ways forward (Räftegård Färggren, 2009:247) (Europe)	“The process of optimizing opportunities for physical, social and mental health to enable older people to take an active part in society without discrimination and to enjoy an independent and good quality of life”
Meeting the challenges of an ageing society: the experience of state health departments (Alongi et al., 2009:246) (United States of America)	Ensure that citizens “are able to live as long, as well and with as much functional independence as possible”
Aging population policy (Ministry of Health, 2005) (The Netherlands)	Cautions against problematizing aging, stresses the importance of social participation, and advocates a life course perspective.

themselves in the development of policies and facilities. The health promotion literature stresses the need for collaboration between stakeholders from different sectors. However, these stakeholders often are not used to working together (Green, Daniel, & Novick, 2001; Koelen & van den Ban, 2004; Wagemakers, 2010; Williams, Costich, Hacker, & Davis, 2010).

Perceptions of both the target group and other relevant stakeholders about health and aging may differ from those used in research and policymaking (Phelan, Anderson, Lacroix, & Larson, 2004). For instance, within the documents included in table 1.1, as well as in other literature, there is little consensus on how the aging population should be defined. The age of 65 is often used in demographics because of retirement at this age, but at the same time policies provide for preventive activities, such as lifestyle interventions, to be aimed at younger age groups to increase their effect, targeting groups starting at the age of 50 or, as in the Dutch case, by advocating a life course perspective. The Dutch policy document (Ministry of Health, 2005) presents research among Dutch citizens in which 85% of the respondents say that old age starts at 70 years of age. All these different perspectives and stakeholders involved in “healthy aging” already give an indication of the complexity involved.

## Healthy aging

Healthy aging as a concept is used alongside related concepts such as effective aging, active aging, positive aging, and successful aging (Hansen-Kyle, 2005). For instance, the World Health Organization (WHO) defines the concept of active aging as: “*the process of optimizing opportunities for health, participation and security in order to enhance quality of life as people age*” (World Health Organization, 2002:12). Furthermore, healthy aging is defined differently depending on the context in which it is used; this influences how issues are approached. Table 1.2 illustrates these differences by including definitions from dictionaries, medical/gerontological, psychological/sociological, and nursing points of view.

**Table 1.2** Definitions of healthy aging

Dictionaries (combination of health and aging)	Ability to continue to function as the body slows down its processes
Medical/Gerontological	Absence of chronic illness. Ability to overcome chronic illness and ability to eliminate risk factors of chronic illness
Psychological/Sociological	Autonomy, accommodation, attitude, and supportive environments
Nursing	Good functional status, supportive environment, health maintenance, psychological independence

Source: after Hansen-Kyle, 2005.

A focus on aging in terms of decline and health risks may help to identify problems and determinants of risk. On the other hand, a more positive orientation provides examples of new opportunities to enhance physical health, well-being, and engagement (Gergen & Gergen, 2001).

Epidemiological data on a broad array of subjects give an indication of important health issues for specific populations. For instance, the periodical senior inhabitant survey of community health services, GGD Gelre-IJssel, provides information on the health status of inhabitants aged 65 and older within this region (Timmerman-Kok, 2006). This information is an important resource in policymaking by municipalities. In the year 2005, around 500 people aging 65 or over in each of the municipalities in this region were sent a questionnaire with 100 standardized questions about health, determinants of health, healthcare use, and healthcare needs. Overall, 7,677 questionnaires were returned, resulting in a response rate of 76%. Results from this survey indicate that 71% of the respondents perceive their health to be good or excellent, even though 70% experience one or more chronic diseases. Furthermore, this survey shows that 26% of the respondents experienced mobility challenges, 20% reported a psychological complaint such as depression, and loneliness was found to be a problem for 41% of the respondents. In the year before the survey, 18% of the respondents were involved in a falling incident. Though care-giving was only performed by a small group of respondents, within this group the burden of care giving was experienced by 6% of this group, another 6% indicated that they were in need of help. Finally, 60% of the respondents were categorized as having a problem with overweight. Overall, the following issues were found to be important influences on the health status of the aging population in this region:

- Loneliness
- Overweight
- Psychological problems and depression
- Falling incidents
- Care-giving burden
- Mobility-related problems

The identification of these issues by itself provides little insight into the situations from which they arise, as well as little information on how to address them effectively.

## Health promotion

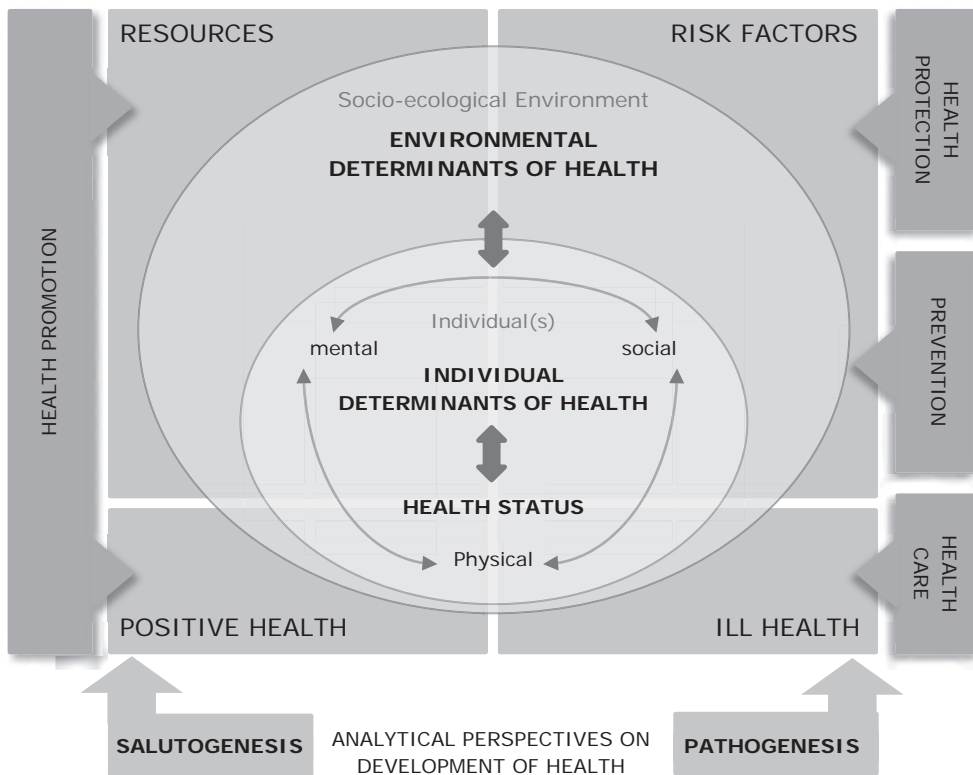
The WHO Ottawa Charter defines health promotion as: *“the process of enabling individuals and communities to increase control over, and to improve their health”* (World Health Organization, 1986:1). In this process, actions directed at individual knowledge, skills, and capabilities, as well as actions aiming to change social, environmental, and economic conditions that may impact public and individual health, are brought together (World Health Organization, 1986).

Health promotion activities take place where people live, work, and play (Koelen & van den Ban, 2004). Initiatives encompass interventions, programs, projects, policy changes, and other organized activities. Several principles have been formulated to further characterize health promotion efforts. Overall, health promotion activities should be:

- Empowering: enabling individuals and communities to gain more power over their health.
- Participatory: involving all concerned stakeholders.
- Holistic: including physical as well as social, mental, and spiritual health.
- Intersectoral: facilitating collaboration between relevant sectors.
- Equitable: with concern for equity and social justice.
- Sustainable: changes must be able to be maintained once initial funding ends.
- Multi-strategy: using a combination and variety of approaches (Rootman et al., 2001).

These principles clearly indicate that health promotion is more than health education in which the focus is on making people aware of the negative health consequences of their behavior (lifestyles).

The EUHPID (European Community Health Promotion Indicator Development project) health development model (figure 1.1) builds on the WHO definition of health promotion and illustrates the complex interplay between the individual and the social and the physical environment (Bauer, Davies, & Pelikan, on behalf of the EUHPID Theory Working Group and The EUHPID, 2006). This model distinguishes two approaches to public health interventions: 1) the deficit-oriented pathogenesis approach that analyzes risk factors and causes of ill health in order to develop prevention activities, health protection, and healthcare, and 2) the assets-oriented salutogenesis approach that analyzes resources for health and positive health (as opposed to ill health) and aims to develop health promotion activities. These perspectives are not contradictory but complementary. Salutogenesis may not only be a useful analytical perspective for health promotion, but can also be of value for health



**Figure 1.1** EUHPID model of health development and promotion (Bauer et al., 2006).

protection, prevention and health care. Similarly, health promotion cannot do without insights derived from pathogenic analyses.

Synthesis and synergy between both will be most effective (Lindström & Eriksson, 2010). In practice however, risk factors identified in epidemiological and biomedical studies are still often the main driving force behind the development of health promotion (Eriksson, Lindström, & Lilja, 2007).

The principal goal for health promotion is to bring changes at the individual level as well as in the social and physical environment, implicating that health promotion interventions are complex and take place in complex environments (Best, Moor et al., 2003). This makes health promotion not a straightforward technical process but a diffuse social process in which stakeholders try to work together and share information, ideas, and decisions. Instead of talking about complex interventions (i.e. interventions that address several health determinants at the same time, in a systematic way) it may therefore be more appropriate to talk about interventions in complex environments.

## Systems thinking

The WHO report, *Systems thinking for health systems strengthening* (de Savigny & Adam, 2009), proposes a systems thinking approach as a way forward to operate in the complex and real world environments in which health promotion takes place. According to this report, the richer understanding of health promotion issues obtained by capturing the knowledge and experiences of diverse stakeholders eventually leads to more robust intervention designs. In other words, by combining knowledge from different sources and stakeholders, it is possible to reach a broader evidence base that takes the complex context of interventions into account (de Savigny & Adam, 2009).

The advantages of systems thinking in the health promotion literature largely address three areas of application. First, it is seen as a way to improve synthesis, translation, and dissemination of research findings into practice by means of translational research (Leischow et al., 2008). For instance, Best and colleagues mention its ability to facilitate intersectoral collaboration and knowledge exchange (Best & Holmes, 2010; Best, Stokols et al., 2003; Best et al., 2006). Secondly, others authors focus more on the opportunities a systems thinking approach offers to increase the evidence base for health promotion beyond controlled trials including trans- or interdisciplinary and multi-level approaches (Green, 2006; Mabry, Marcus, Clark, Leischow, & Mendez, 2010). The third application describes the facilitation of system-wide change, social learning, and understanding the complex processes involved in this (Keshavarz, 2010; Kremser, 2010; Midgley, 2006).

Overall, systems thinking is an approach that addresses situations perceived as problematic by viewing these situations as part of a wider and dynamic context. Instead of isolating problems from this context in order to investigate and “solve” them, the system is addressed as a functioning whole. In this way, a more realistic understanding of what works, for whom, and under what circumstances, can be reached. Typically, it advocates and facilitates a multidisciplinary approach.

The health promotion literature in the area of systems thinking includes many papers addressing the topic of complexity in health promotion. A broad spectrum of concepts is, often interchangeably, used in this regard. Strictly, these concepts all have their own definitions and approaches. However, in the health promotion and public health literature, similar issues seem to be discussed. Examples include: systems theory (Anaf, Drummond, & Sheppard, 2007; Mendez, 2010), complex adaptive systems (Bar-Yam, 2006; Kremser, 2010; Morse, 2004; Shiell, Hawe, & Gold, 2008), systems thinking (Best & Holmes, 2010; Best, Moor et al., 2003; Best, Stokols et al., 2003; Best et al., 2006; de Savigny & Adam, 2009; Leischow et al., 2008; McLeroy, 2006; Trochim, Cabrera, Milstein, Gallagher, & Leischow, 2006; Williams et al., 2010), social systems (Raak Van & Paulus, 2001), soft systems (Checkland, 2000), systemic interventions (Midgley, 2006), knowledge systems (Koelen & Brouwers, 1990), complexity theory (Green, 2006; Resnicow & Page, 2008; Sterman, 2006), and systems science (Keshavarz, 2010; Mabry et al., 2010; Marcus, Leischow, Mabry, & Clark, 2010).

Also, setting approaches to health promotion (Paton, Sengupta, & Hassan, 2005; Poland & Green, 2000), community health promotion (Best, Stolols et al., 2003; Green et al., 2001; Scharff & Mathews, 2008; Wagemakers, 2010), and participative or action research (Reason & Bradbury, 2008; Rietbergen-McCracken & Narayan, 1998) show characteristics that encompass systems thinking concepts.

It is therefore important to clarify in what way this thesis will use the notion of complexity and systems thinking. Shiell et al. (2008) distinguish the difference between complexity as a property of interventions and as a property of systems. Complex interventions are built from a number of components that may act dependently or independently of each other. It is difficult to find out which exact combination of components is needed to gain optimal effect. Complexity as a property of a system refers to a system that changes, adapts to its environment, behaves in a non-linear fashion, and whose dynamics are hard to predict in advance. Actors within the system all have their own perceptions, values, and aims. Interventions in such systems can be simple or complex. The complex systems approach, however, also takes the context of the intervention into consideration (Shiell et al., 2008). This thesis will use systems thinking to deal with complexity as a property of a system with a focus on actor perceptions, and contextual complexity and dynamics.

In this regard, Checkland stresses that changes in complex systems should be systemically desirable and culturally feasible (Checkland, 1990, 1999, 2000). In other words, health promotion activities or interventions should be truly relevant to the situation (systemically desirable) and meaningful to those involved (culturally feasible). This implicates that perceptions and viewpoints of involved stakeholders should be taken into account. If not, one would be focusing on the intervention and not on its context, thus creating an intervention that is relevant but does not fit the need or capacities of the system (or complex environment) around it.

## **Complexity challenges**

When health promotion interventions fail to achieve their desired effect, this is not per se because of flaws in the intervention itself, but can also be caused by the unpredictable behavior of the complex context around it. Interventions might not work in some settings whereas they function perfectly well in others. It is therefore necessary to gain insight into why, how, and under what circumstances health promotion activities work (de Savigny & Adam, 2009; Green, 2006; Koelen, Vaandrager, & Colomer, 2001; Kremser, 2010). Conventional evaluation methods fail to understand such underlying processes. They are ineffective in taking into consideration the great variety of influences and variables in the environment. Moreover, variables are often explicitly excluded by controlling them, equalizing them, or holding them constant (Green, 2006). In this way, the complex context of an intervention or activity becomes "black boxed."



To assess the quality, efficiency, and sustainability of health promotion interventions, evidence of their effectiveness is pivotal. However, the concept of evidence tends to focus on the biomedical application of effectiveness (Keshavarz, 2010). Although this controlled approach is a prerequisite to assess health level effects of interventions, many outcomes and processes that lead to these effects remain unnoticed. As a consequence, projects that have been in fact successful at a different level can be judged as failures, or projects that are evaluated as successful may not meet the needs of involved stakeholders (Leeuwis & van den Ban, 2004).

The WHO report, *Systems thinking for health systems strengthening*, therefore states that a research paradigm that also considers inputs, outputs, initial, intermediate, and eventual outcomes, evaluations, feedback, processes, flows, control, and contexts is needed to gain insight into the “black box” of interventions (de Savigny & Adam, 2009). This statement illustrates clearly the complexity of health promotion practice and research because an evaluation design that encompasses all these different outcome levels does not exist. A multi-method and trans-disciplinary approach, including participatory research that involves stakeholders, can build a broader evidence base. Or in other words, if we want more evidence-based practice, we need more practice-based evidence (Green, 2006).

The input and involvement of diverse stakeholders is key to efficient, effective, and meaningful interventions and thus a main dimension to its complexity. In the health promotion literature, major stakeholders are often grouped as professionals, researchers, and policymakers. The relationship between these actors is frequently addressed in such literature. Examples include: the research–policy–practice triangle (Jansen, 2007; Saan & de Haes, 2005), the nexus between research, policy, and practice (de Leeuw, McNess, Crisp, & Stagnitti, 2008), and the knowledge to action cycle (KTA) (Best & Holmes, 2010). Figure 1.2 provides an illustration of stakeholders involved in health promotion as conceptualized within this study.



**Figure 1.2** Research–policy–practice triangle.

Involved stakeholders all have different perceptions, experiences, aims, and time horizons. For instance, from an evaluation research perspective, health promotion interventions often need to be implemented as designed because standardization and protocols are essential to the evaluation process (Breitenstein et al., 2010). However, professionals work in an unpredictable context in which existing rules, routines, institutions, and perceptions can hinder the implementation of interventions and hence can influence effects (de Savigny & Adam, 2009; Koelen et al., 2001; Kremser, 2010).

Also, aims are often formulated in terms of long-term effects such as health outcomes. Consequently, this involves a long timeline before effects in quasi-experimental or controlled designs become visible. Moreover, quasi-experimental and controlled designs may cause a delay in the start of an intervention because of required baseline measurements, and so influence the momentum created in practice (Koelen et al., 2001).

A final remark about research–policy–practice models, such as the one visualized in figure 1.2, is the fact that they often do not explicitly include target groups. However, people never live in sterile environments with only the health promotion activity in question influencing their behavior, and although research, policy, and interventions often aim at single risk factors, the audience is confronted with communications about all of them (Horstman, 2010). Furthermore, lay perceptions about health may differ from those used in research and policy making (Phelan, Anderson, LaCroix, & Larson, 2004). For instance, lay perceptions are found to focus more on the social environment and ability to manage restrictions than on the mere absence of disease (Byrant, Corbett, & Kutner, 2001; Flick, Fischer, Neuber, Schwartz, & Walter, 2003; Flick, Fischer, Schwartz, & Walter, 2002).

Box 1.1 at the end of this chapter presents an essay that illustrates how these stakeholder dynamics influence processes aimed at healthy aging in practice. It describes experiences originating from research within this thesis and thus provides a short preview of its contents.

## Overall aim and research questions

Given the complexity of health promotion practice, research approaches often do not fit the realities of practice. As a result, health promotion activities are not always experienced as meaningful by all stakeholders involved. This thesis aims to appreciate the complex environment in which health promotion takes place by applying a systems thinking perspective to healthy aging in order to contribute to more robust strategies and interventions to support the aging population. More specifically, this thesis aims to:

1. Explore and adapt a systems thinking approach to health promotion: what can a systems thinking approach contribute to strengthening health promotion?

2. Apply a systems thinking perspective to healthy aging by assessing different stakeholder perceptions on healthy aging strategies at the local level.
3. Further operationalize new insights into health promotion practice.

These questions are answered in various ways. Therefore, the next section elaborates on the research setting and research approach.

## Research setting

This thesis is part of the healthy aging program of the academic collaborative, AGORA (ZonMw, 2010), situated in the Gelre-IJssel region in the eastern part of the Netherlands as illustrated in figure 1.3. The healthy aging program consists of four strongly interrelated research projects that aim to construct a shared knowledge base for the development of strategies for improving the health and well-being of the aging population. More information about the AGORA structure can be found in appendix I and chapter 2 of this thesis.



**Figure 1.3** Municipalities within the Gelre-IJssel region.

Academic collaboratives actively foster research–practice interactions in order to facilitate the practical application of research results. This practice-oriented context has influenced the research approach in several ways. This section therefore first provides some general information on the research setting, followed by methodological considerations underlying the research.

In 2006, four municipalities in the Gelre-IJssel region, being Epe, Zutphen, Berkelland, and Ermelo, committed to collaborating with AGORA. Three of these municipalities actively participated in the program while another functioned as control group for evaluation purposes. Table 1.3 provides general demographics for the participating municipalities derived from the senior inhabitant survey conducted in 2005. This table illustrates how the aging population constitutes about 14 to 18% of the population. Zutphen is the most urbanized municipality with 1,127 inhabitants per squared kilometer and the highest percentage of single-person households. Berkelland is the municipality covering the largest area with 260 square kilometers. The municipality of Berkelland was founded in 2005 as a result of merging four smaller municipalities.

## Methodological considerations

The empirical chapters in this thesis each contain a section that extensively elaborates on applied methodologies. However, some methodological considerations have influenced the research approach throughout this thesis. These considerations are addressed below.

### *Assets approach and action research*

Research concerning healthy aging often tends to focus on risk factors, for instance such as those identified in the senior inhabitant survey mentioned earlier. The EUHPID model in figure 1.1 makes clear that deficit- and assets-based approaches complement each other. To complement the available deficit-based data, this thesis therefore adopts an assets-based approach to health promotion. Health issues and aging, however, tend to reflect a risk-oriented approach. The collection of empirical data was therefore inspired by Appreciative

**Table 1.3** Demographics participating municipalities in 2005

Municipality	Berkelland	Epe	Zutphen	Ermelo <sup>1</sup>
General population	45,226	32,655	46,643	26,414
Population density	175 inh/km <sup>2</sup>	212 inh/km <sup>2</sup>	1,127 inh/km <sup>2</sup>	302 inh/km <sup>2</sup>
Population aged 65 and over	7,113 (16%)	5,878 (18%)	6,299 (14%)	4,327 (16%)
Single-person households	29%	33%	36%	34%

<sup>1</sup> Since Ermelo was not included in the 2005 survey, 2010 AGORA survey data are provided.

Inquiry, which matched the desired assets-based approach. Originally, Appreciative Inquiry is an organizational change methodology that starts with appreciating the value of what exists and from there envisions desired situations. In this way, its focus is on problem solving rather than on creating an inventory of all possible problems (Cooperrider, 2005; Cooperrider, Whitney, & Stavros, 2005). Appreciative Inquiry has been used to inspire health promotion research (Gergen & Gergen, 2001; Melander-Wikman, Jansson, & Ghaye, 2006; Reed, Richardson, Marais, & Moyle, 2008), and has already been used as an interview tool (Michael, 2005).

To decide on follow-up steps and to improve healthy aging in participating municipalities, results from this thesis were shared with local stakeholders, policymakers, and aging individuals. This matches an action research approach that aims to analyze a situation and its problems, to find solutions to address these problems, and to look for opportunities to put these solutions into practice (Koelen & van den Ban, 2004). In close collaboration with another AGORA project, interactive presentations and workshops were organized in each municipality. In addition to follow-up steps in the municipalities, this action research also provided the feedback and experiences that were necessary to further shape research within this thesis.

### ***Multi-methods***

Systems thinking aims to include a diversity of viewpoints on an issue. Therefore, to be able to answer the research questions, multiple methods were required. A combination of literature review, semi-structured and open interviews, interactive workshops, case study and survey research was used. Different sources for data collection included the aging population, local and national stakeholders, and AGORA project members. Most data were collected within this specific project. However, some of the data used were collected through several collaborative efforts within and outside of AGORA. Table 1.4 summarizes approaches, methods, data origin, and related projects for each chapter in this thesis.

The combination of information from different perspectives, sources, and methods increases validity by providing different forms of triangulation and crosscheck of information (Koelen et al., 2001). This thesis applied *data source triangulation* by using different sources about the same topic, being interviews about healthy aging with aging individuals, local stakeholders, researchers, and policymakers. Furthermore, interviews took place in multiple settings, being the three different municipalities. *Methods triangulation* was applied by the combined use of qualitative and quantitative methods within this thesis. Results originating from the quantitative senior inhabitant survey by the community health service GGD Gelre-IJssel informed interview designs, and results from the qualitative interviews informed quantitative exploration of key concepts using survey data collected within the AGORA project. Finally, *researcher triangulation* was applied by the active involvement of local stakeholders and frequent discussions of results within the AGORA project group. Besides

**Table 1.4** Chapters, methods, and data origin

Part	Chapter	Approach	Methods	Data origin	Project origin
I	2	Theoretical, empirical illustration	Literature review Semi-structured interviews	AGORA members	AGORA, this project
	3	Qualitative	Semi-structured interviews	National health promotion stakeholders	External project
II	4	Qualitative	Open interviews	The aging population in municipality A, B, C	AGORA, this project
	5	Qualitative	Semi-structured interviews	Stakeholders from municipality A, B, C	AGORA, this project
III	6	Qualitative action research	Interactive presentations Workshops Case study	Stakeholders from municipality A,B,C Synthesis of results from AGORA project	AGORA , other project
	7	Quantitative and qualitative	Survey Interviews	Municipality B, C, D Data available through other AGORA project	AGORA, this project

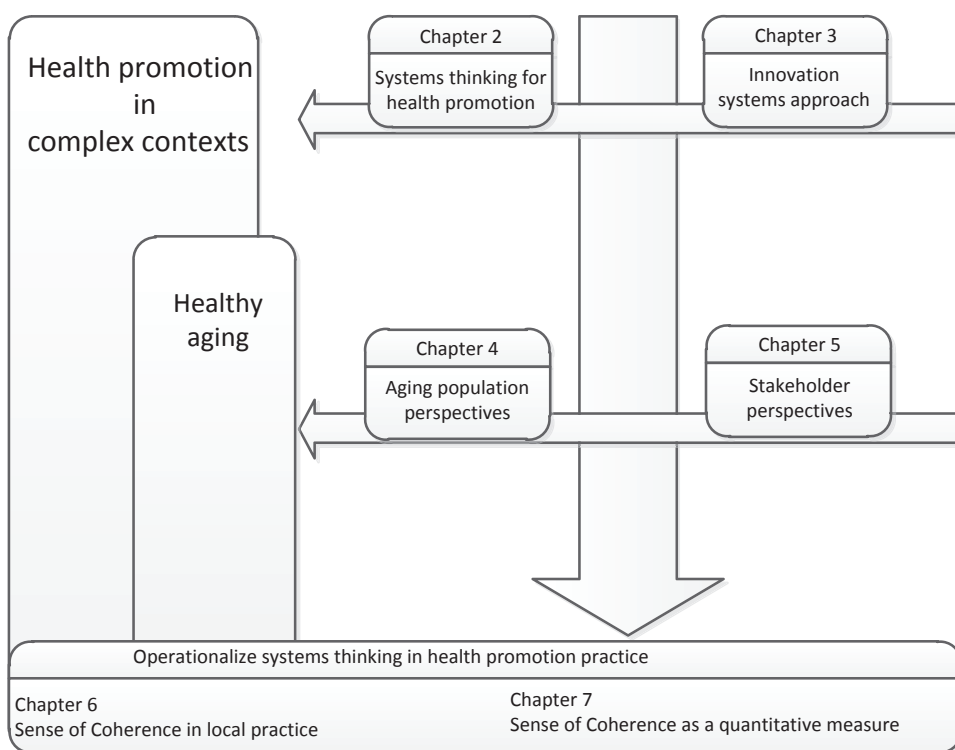
these forms of triangulation, information was continuously checked with stakeholders at the local level. Debates, workshops, and participant checks of results addressed different views on the interpretation of results. Interpretations with a high level of agreement could be considered reliable; in the event of disagreement, further inquiry was needed.

## General outline of this thesis

Figure 1.4 connects the chapters within this thesis to research questions and in this way outlines the three parts within this thesis. This figure also illustrates the way chapters contribute to health promotion or, more specifically, healthy aging in complex contexts. Each part builds on the preceding part, using its insights and results.

### *Part I*

Chapters 2 and 3 elaborate on systems thinking in health promotion. Chapter 2 elaborates on concepts from systems thinking applied to healthy aging in complex environments. Empirical data, obtained by interviewing members within the AGORA project group, are used to illustrate the application of systems thinking to the AGORA context. Chapter 3 uses an innovation systems approach to analyze knowledge exchange and use within the



**Figure 1.4** Thesis outline and chapters.

Dutch public health and health promotion. Empirical interview data were collected at the national level.

### **Part II**

Chapters 4 and 5 focus on the local practice of healthy aging. Chapter 4 investigates how the aging population within three participating municipalities experience healthy aging in their everyday lives. Chapter 5 addresses the challenges and experiences of professionals and other stakeholders within these municipalities, as well as their perspectives on healthy aging. Results from these studies provided essential input for the development of activities within AGORA's healthy aging program.

### **Part III**

To further operationalize systems thinking for health promotion practice, findings from Part II of this thesis were discussed in interactive presentations and workshop formats in participating municipalities. Local stakeholders as well as aging persons were invited to

participate in workshops and collaboratively create follow-up steps to improve healthy aging. These workshops were organized in close collaboration with another AGORA project that also guided these local processes by means of action research. In this way, collaboration between AGORA projects provided feedback from local practice that shaped Part III of this thesis. Chapter 6 first describes a framework that was co-created in the context of AGORA in order to enable all parties involved to collaborate meaningfully in a complex environment. Subsequently, the chapter presents an intervention that was developed through the use of this model, and reflects on its potential for addressing healthy aging in a complex environment.

Furthermore, feedback from these local discussions made clear that an assets-based approach was desirable to improve local healthy aging strategies. The opportunities of Salutogenesis were explored and the Sense of Coherence concept was included in the developed framework. Both Salutogenesis and Sense of Coherence were identified as promising concepts. It was therefore expected that quantitative measurement of SOC could be useful. Sense of Coherence can be measured quantitatively by using the scale: Orientation to Life Questionnaire (OLQ). Chapter 7 investigates the psychometric properties of this scale using data collected in municipalities B, C, and D.

### ***General discussion and conclusion***

The main findings, the methodological considerations and the implications of our findings are discussed in chapter 8. In addition, suggestions for future research and recommendations for health promotion are provided.



**Box 1.1** Translating knowledge or creating a shared language?

Jenneken Naaldenberg, 2010

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*He was sitting behind his desk. Looking around the room, he saw the familiar faces of his colleagues: policymakers he had been working with for many years now. They had just received the latest research results of the municipal health services, universities, and national health research institutes. The aging population, defined by the institutes as aged over 60, was not doing particular well. A shocking thought crossed his mind, he belonged to this population! He felt quite healthy though. However, they had to decide today which of the pressing problems they would include in their healthy aging policy for the next years. Was loneliness a more severe problem than overweight? Should they focus on mobility challenges or rather on the care-giving burden? As they discussed these issues, he actually started to feel a bit weak. Maybe his age was getting to him.*

The case above illustrates the importance of knowledge translation: the policymakers will have to translate the presented research results into healthy aging policies. The 2010 Global Symposium on Health Systems Research defines knowledge translation as: translating health system knowledge into policy and practice. This definition underlines the need to translate scientific knowledge for further use in policy and practice.

But what about the other way around? What about the knowledge that is present within policy and practice? Should we not translate this knowledge into research as well? Experiences of those working in the field can provide insights that are valuable to research. Furthermore, people in the field encounter many practical health system challenges like: how to reach hard-to-reach groups and how to mobilize people. Researchers often have a hard time translating practical problems into sound research questions and try to study real-life problems in controlled research settings only to find that the results of their research do not quite match reality, either because of deviations from this initial problem during the research or because the practical setting has changed during the (time-consuming) research process.

The policymaker in the example above encountered some difficulties prioritizing health issues concerning the aging population. Of course, policymakers are not the only stakeholders involved. Concerning healthy aging for instance, it would be interesting to see how welfare organizations perceive age-related issues:

*The weekly team meeting at the welfare organization was running quite smoothly. They were moving down the agenda at a nice pace and the chairperson was content. Before the meeting closed, a last round of pressing queries was to be made. "We have just received the new targets set by the municipality. If we want to compete for funding we should submit some ideas that focus on either loneliness, overweight, or mobility. Any ideas on approaches?" An animated discussion followed. They provided a wide array of services, almost all of which fitted the requested profile. One of the employees present voiced a concern shared by many others. "We already provide many services but these are mostly attended by active older persons. How do we reach those who need these services most? How do we tailor our services to hard-to-reach groups?"*

This team meeting at the welfare organization raises new issues! In order to be able to prevent loneliness, overweight, or mobility problems, they seem to need information on how to reach

frail members of their target group. Since they brought the target group into the discussion, let's ask Mr Mulder, aged 83, how he thinks about this issue. He might just be reading about the new policy plans in the local newspaper:

*One of the headlines in the local newspaper catches Mr Mulder's eye: "80% of the elderly in the region feel lonely." It strikes him as a sad thought. His wife passed away only two years ago and he could easily have been one of those 80%. He counts himself lucky. Lucky to have grandchildren that like to come over every now and then. He talks with them about politics, current affairs, the weather, and of course soccer. His newspaper always provides him with enough interesting material for a conversation. And then there is his neighbor, he sometimes comes around for a coffee and a chat. Mr Mulder finds great comfort in that. Once, his neighbor had invited him to come along to the choir. Mr Mulder would never have gone there by himself, he wouldn't even sing while taking a shower! Well, until that evening that was. Now he did sing. Two evenings a week at the choir and even in the shower, he smiled. No, he really had been lucky. Maybe he should invite someone along as well.*

Mr Mulder also brings new information to the issue. His grandchildren, neighbor, newspaper, and the invitation to join the choir prevented him from becoming lonely. The know-how of the policymakers, the welfare organization, and Mr Mulder, all provide insights that could inform research and complement research results. Realizing this, we might need to change the description of knowledge translation into: Translating health system knowledge into policy and practice, and knowledge from policy and practice into research.

The examples above originate from qualitative research (Naaldenberg, Vaandrager, Koelen, Lezwijn, & Leeuwis, submitted; see chapter 5; Naaldenberg, Vaandrager, Koelen, & Leeuwis, 2011; see chapter 4) within the healthy aging program of the academic collaborative AGORA in the Netherlands (Naaldenberg et al., 2009; see chapter 2). They show how the combined information from research, policy, and practice creates a richer picture of the issue in question. Following the examples above, the policymakers would know about the practical problems that professionals encounter. Mr Mulder could elaborate on his strategies to prevent loneliness and the way a personal invitation from his neighbor made him do something he would not have done otherwise (join the choir). This might be information, or knowledge, that professionals could use to involve those hard-to-reach groups.

In the case of AGORA, loneliness was selected as the main focus for the healthy aging program. However, the combination of knowledge and interactive discussion with stakeholders resulted in a project that aims to engage aging individuals in social activities. Active older people are invited to organize an activity and invite less active older people (specifically in their neighborhood) to participate (Lezwijn, Naaldenberg, Vaandrager, & van Woerkum, 2011; see chapter 6). Of course, this project also aims to reduce loneliness. Instead of selecting an existing intervention to prevent loneliness, this co-created project includes essential points raised by the different stakeholders. This creates a better fit to the specific context in question and addresses several other essential issues, such as involving hard-to-reach groups.

This way of sharing thoughts and experiences, and combining them into action, creates a shared language. Translation of knowledge becomes less of an issue and maybe this justifies a final change in its definition. Knowledge management: facilitating the co-creation of health system knowledge by the combined efforts of research, policy, and practice.

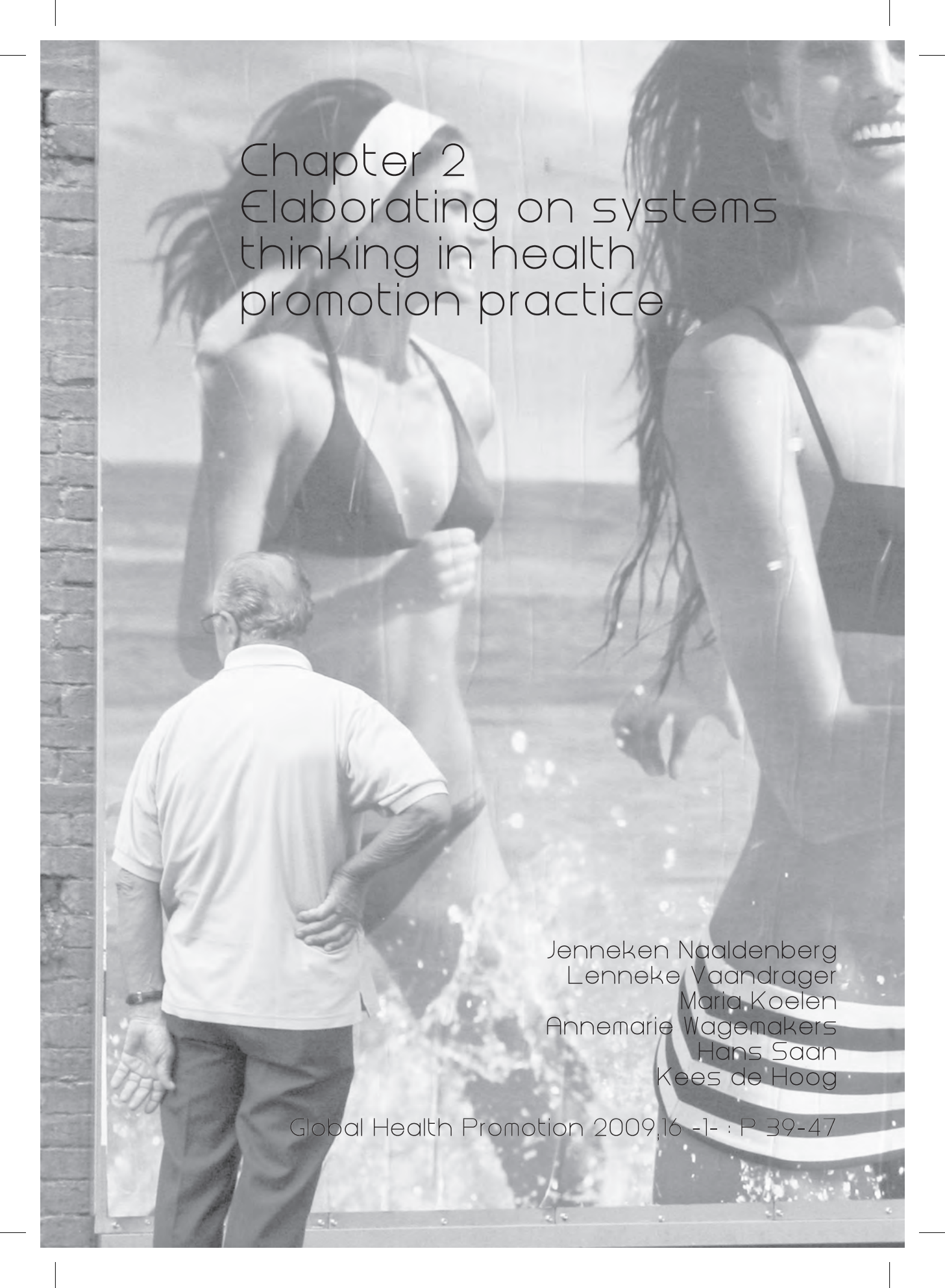
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## Chapter 2 Elaborating on systems thinking in health promotion practice

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## **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.



## INTRODUCTION

For health promotion to be effective, health, behavior, and the wide scale of individual and environmental determinants need to be included and approached from different angles at the same time (Koelen & van den Ban, 2004). Therefore, health promotion strategies increasingly take effort to incorporate social, ecological and political factors, resulting in a broad perspective on health and health promotion (Green & Kreuter, 2005). Health promotion processes ask for a mix of interventions and for cooperation between people and organizations from multiple sectors within a community (Koelen & van den Ban, 2004). 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 (Bartholomew, Parcel, Kok, & Gottlieb, 2006; Rootman et al., 2001; Tones & Green, 2004). Interactions between these factors play an equally important role but can be easily overlooked in a systematic approach (Koelen, Vaandrager, & Colomer, 2001; Tones, 2000). 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 system thinking in the field of health promotion (Best et al., 2003; Dooris, 2006; Midgley, 2006; Trochim, Cabrera, Milstein, Gallagher, & Leischow, 2006; van Raak & Paulus, 2001), more attention for the practical implications of systems thinking for health promotion is important (Paton, Sengupta, & Hassan, 2005). Other fields such as agricultural extension studies (Engel, 1995; Leeuwis & van den Ban, 2004), organizational studies (Checkland, 1990, 1999, 2000; Ulrich, 1987; Ulrich, 1991), and development studies (Groot, 2002; Groot & Maarleveld, 2000) 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 (Best et al., 2003; Best et al., 2003; Koelen & van den Ban, 2004).

The complexity of a system has implications on 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 (Checkland, 2000; Leeuwis & van den Ban, 2004). Less complex, technical systems are well defined and often referred to as hard system. 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 kind of situations usually 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 kind of soft systems involve several individuals or groups with own interpretations and cultural considerations, and are also referred to as social systems. Such systems require an approach with a more holistic nature (Checkland, 1990, 2000). Soft systems approaches move away from working with the idea of an obvious problem which 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 principle goal for health promotion is to bring changes at 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 (Engel, 1995). 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 toward the shared problem or shared goal.

These kind 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 in 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 (Engel, 1995; Groot & Maarleveld, 2000; Leeuwis & van den Ban, 2004; Morgan, 1986).

## Important concepts of social systems

To foster learning and innovations, insight in 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 (Checkland, 1990, 1999, 2000; Engel, 1995) and critical system heuristics (Midgley, 2006; Ulrich, 1987; Ulrich, 1991). Three constructs play an important role within both critical system heuristics and soft system 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 behavior (Engel, 1995). 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 (Checkland, 2000). 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 (Leeuwis & van den Ban, 2004). 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 system 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 (Checkland, 1990, 2000; Kraaijenbrink, 2006). 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 kind 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 (Checkland, 1990; Ulrich, 1991)?

### ***Meaning***

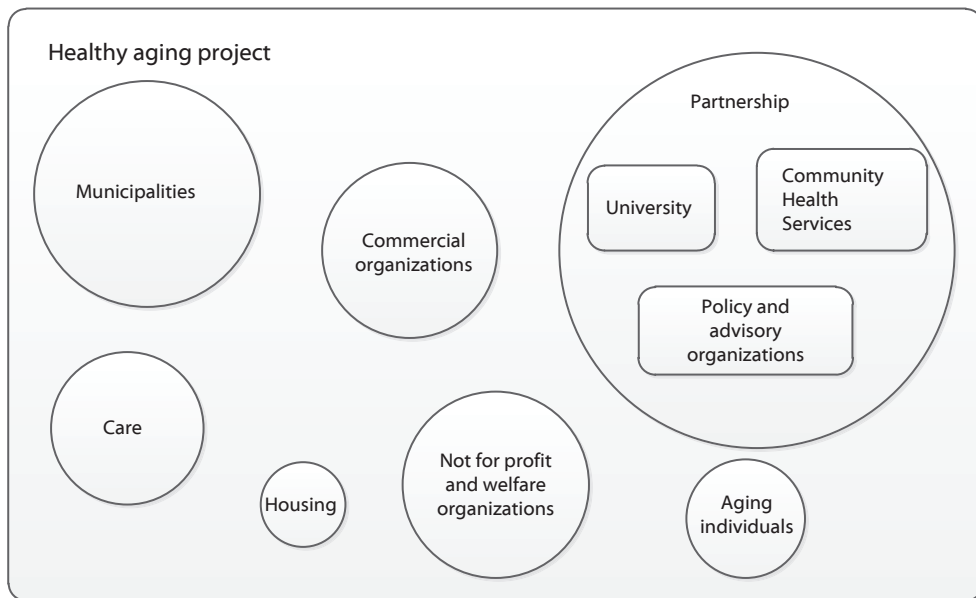
Actors in a social system share a collective goal, but they also have their own goals and their own perceptions, routines, and values. All of this influences the meaning that they attach to actions and issues within the system (Checkland, 1990, 2000; Kraaijenbrink, 2006; van Raak & Paulus, 2001). The significance of meaning and interpretation in understanding the social world is described in interactionist theories (Benzies & Allen, 2001; Burrell, 1979). Three basic assumptions underpin interactionist theories. First, people act on the basis of the meanings that things or actions have to 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 like community health services, local health and well-being organizations, and commercial organizations. Questions that can be used to explore the differences between actors could be: 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 (Checkland, 1990; Ulrich, 1991)?

### ***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 (Saan & de Haes, 2005). The possession or need for certain resources influences interdependency between actors and consequently, power relations within the system (van Raak & Paulus, 2001). In resource dependence theory Pfeffer and Salancik (Pfeffer & Salancik, 1978) 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 (van Raak & Paulus, 2001). 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, causes things to happen or to stop a course of action in order to change significantly the direction of actions (Checkland, 1990, 2000). 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 favorable or unfavorable. If actions are judged as favorable, actors are likely to contribute resources to the system. If actions are judged as unfavorable, actors can use resources to change the course of actions within the system (van Raak & Paulus, 2001). 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 (Checkland, 1990; Ulrich, 1991)?

## **HEALTH PROMOTION PROGRAM 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 research, to improve the health of the aging population in the Gelre-IJssel region. This partnership is one of nine “academic collaboratives” that are financed by The Netherlands Organization for Health Research and Development (ZonMw) as a part of a national science-practice interaction program. Within the healthy ageing program, several actors from multiple sectors work together on the shared goal of healthy ageing. Figure 2.1 gives a simplified summary of this system in which the partnership is a subsystem. Members



**Figure 2.1** Illustration of possible actors and subsystems.

of the partnership (n=15) were interviewed about topics that are important for health, for potential interventions and for collaborative processes. The interviews were analyzed 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 municipal level, the partnership becomes part of the existing systems on ageing within the municipalities (figure 2.1).

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 centers in the Netherlands. Subsystems are also

found within the university. For example, the different research disciplines involved are: 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 aging population, and health care organizations play a role. Commercial initiatives and, last but not least, aging individuals 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 aging individuals 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 University research departments are contributing to the collaboration. 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 shown 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 favor

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 was analyzed 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 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 systems' 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 need 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 amongst each other, this stimulates the creation of a common ground and helps creating sustainable changes and innovations. The implicit functioning of the system is made explicit by these kind 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 (Poland & Green, 2000) discusses that for many critical theorists (Habermas, 1973) and proponents of critical pedagogy (Freire, 1995), 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 (Koelen et al., 2001; Leeuwis & van den Ban, 2004). Recent literature on health promotion supports the use of multi method approaches and realist evaluation methods (Pawson, 2002, 2007; Rootman et al., 2001; Tones & Green, 2004).


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.

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Chapter 3  
Beyond bridging the  
know-do gap:  
an innovation systems  
perspective on the public  
health and health  
promotion sector in  
The Netherlands

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Submitted for publication

## ABSTRACT

**Context:** Despite the considerable attention currently being given to facilitating the use of research results in public health and health promotion, several concerns remain in bridging the so-called know-do gap. This article aims to broaden the perspective on bringing research knowledge into action, going beyond the science-policy maker interface, by using an innovation systems approach.

**Methods:** The Dutch public health and health promotion innovation system was mapped by means of an email survey among 30 key informants, together with in-depth semi-structured interviews with 33 respondents from the different domains in the innovation system. The innovation system failure framework was used to assess constraints in the Dutch public health and health promotion innovation system, and the principal obstacles to innovation were highlighted.

**Findings:** The obstacles identified included: unclear role divisions; lack of incentives to integrate and co-create activities including job descriptions allowing for interaction; competition for funding; exclusion of experience-based knowledge; and lack of research financing and evaluation structures. There is also a lack of capacity: knowledge users' capacity to influence the research agenda or write research funding proposals and researchers' capacity to stimulate systemic interaction. Knowledge brokers could have a role in creating better linkages across several interfaces in the system and act as "systemic innovation brokers", but they predominantly translate scientific knowledge into ready-made innovations in the form of reports, databases, and websites rather than actively stimulating interaction.

**Conclusions:** Beyond closing the know-do gap by bringing research knowledge into action, knowledge co-creation is about combining different bodies of knowledge as well as creating contextual conditions (achieving shared visions, institutional change, removing financial and infrastructural barriers) for such knowledge to become effective and induce innovation. This thus requires a broader analytical systemic perspective that goes beyond focusing on bridging the know-do gap, but focuses on creating conducive factors at several system levels and requires that knowledge brokers broaden their mandates to become systemic innovation brokers.

## INTRODUCTION

In order to promote the use of evidence-based results, much attention has been given to the different realities in which researchers and various research users such as policy-makers, public health and health promotion professionals, the general public, and non-governmental organizations live and work, and to how to connect these worlds (Choi, Gupta, & Ward, 2009; de Leeuw, McNess, Crisp, & Stagnitti, 2008; Lavis, 2006a). Differences in incentive and reward systems, different time horizons of their activities, power and budget struggles, mistrust between the different worlds, all result in research not being used at all, or not being used appropriately (Choi et al., 2005; Jacobson, Butterill, & Goering, 2004). Conversely, research is not informed by developments in policy and practice (for example, to adjust the research agenda (Jansen, de Vries, Kok, & Van Oers, 2008)). The same applies in public health and health promotion (Green, 2006; Pablos-Mendez & Shademani, 2006), the empirical focus of this article.

There now exists a broad range of literature that talks about the role of “knowledge brokers”. They perform important roles in translating research findings in order to tailor these findings to the needs of users and inform policy and practice with research evidence (Jacobson, Butterill, & Goering, 2005; Lapaige, 2010; Lavis, Robertson, Woodside, McLeod, & Abelson, 2003; Lomas, 2007; Ward, House, & Hamer, 2009). In this article we adopt the term knowledge brokering. This term comprises other concepts, such as knowledge translation, transfer and diffusion, and exchange (Mitton, Adair, McKenzie, Patten, & Perry, 2007; Thompson, Estabrooks, & Degner, 2006; Ward et al., 2009).

Knowledge brokering is key in bridging the know-do-gap (Jessani & Reid, 2008), i.e. a lot of research evidence is produced but not used. As the recent literature indicates, knowledge brokering is not, or should not be, merely a one-way process of research push. Rather, it is an interactive process in which research producers and research users are in dialogue and there is active knowledge exchange (Jacobson, Butterill, & Goering, 2003; Lee & Garvin, 2003). This process already starts in the priority setting stage and continues throughout the research process. Such continuous interaction enhances applicability of research results and enables ownership amongst intended users (Caron-Flinterman, Broerse, & Bunders, 2007; Lomas, 2007; Tetroe et al., 2008). Knowledge brokering thus does not only take place after research has finished.

Despite the growing academic attention on facilitating the use of research results (Lapaige, 2010; Lomas, 2007; Ward et al., 2009), and the growing experience in knowledge brokering modalities (Contandriopoulos, Lemire, Denis, & Tremblay, 2010; Harris & Lusk, 2010; Langille, Crowell, & Lyons, 2009; Lavis, Lomas, Hamid, & Sewankambo, 2006b), several concerns remain, and critiques can be raised as regards bridging the know-do gap by knowledge brokering.

A first concern is an often still dominant understanding of bridging this gap as equaling linear scientific knowledge transfer through dissemination. There are many

examples that show that mere dissemination of scientific knowledge does not lead directly to effective implementation improvements in practice. Even if research-based knowledge is translated into more accessible and user friendly forms, implementation often fails, given the idiosyncratic features of the local context (Armstrong, Waters, Crockett, & Keleher, 2007; Contandriopoulos et al., 2010; Green, 2009; Satterfield et al., 2009). Glasgow and Emmons have demonstrated that there is an important gap between interventions that are deemed effective on the basis of research-based evidence and the effectiveness of the same interventions implemented in practice (Glasgow & Emmons, 2007).

Secondly, although incorporating ideas on interaction and dialogue between research users and producers, much of the work on production and exchange of knowledge still embraces diffusion thinking. Here, research findings are considered as a package of ready-made innovations that should be adopted as such by users (Greenhalgh, MacFarlane, Bate, & Kyriakidou, 2004; Jacobson, 2007; Kerner, 2008; Landry, Amara, Pablos-Mendes, Shademani, & Gold, 2006). In such a diffusion model, user participation is often merely consultative, instead of being a true partnership that recognizes different sorts of knowledge besides scientific knowledge (Abma & Broerse, 2010; Shea et al., 2005; Speller, Wimbush, & Morgan, 2005).

Thirdly, much of the work focuses on bilateral interfaces, such as those between researchers and policymakers, instead of applying a fully systemic view (Best & Holmes, 2010; Naaldenberg et al., 2009; see chapter 2).

Fourthly, the strong focus on research and knowledge obscures the fact that the success or failure of change and innovation is determined by several other influential factors that determine its success or failure (Best & Holmes, 2010; Landry et al., 2006; Smits, 2002).

In this article, the intention is to broaden the perspective on bridging the know-do gap, focusing on an interactive perspective by drawing on insights from innovation studies following a call by Estabrooks et al. 2006 to draw on other theoretical fields (Estabrooks, Thompson, Lovely, & Hofmeyer, 2006). By applying the so-called innovation systems perspective, interactions among actors concerned within the Dutch public health and health promotion system were analyzed, highlighting some key tensions. Some reflections on the role of knowledge and knowledge brokers in public health and health promotion theory and practice conclude this paper.

## **THEORETICAL FRAMEWORK**

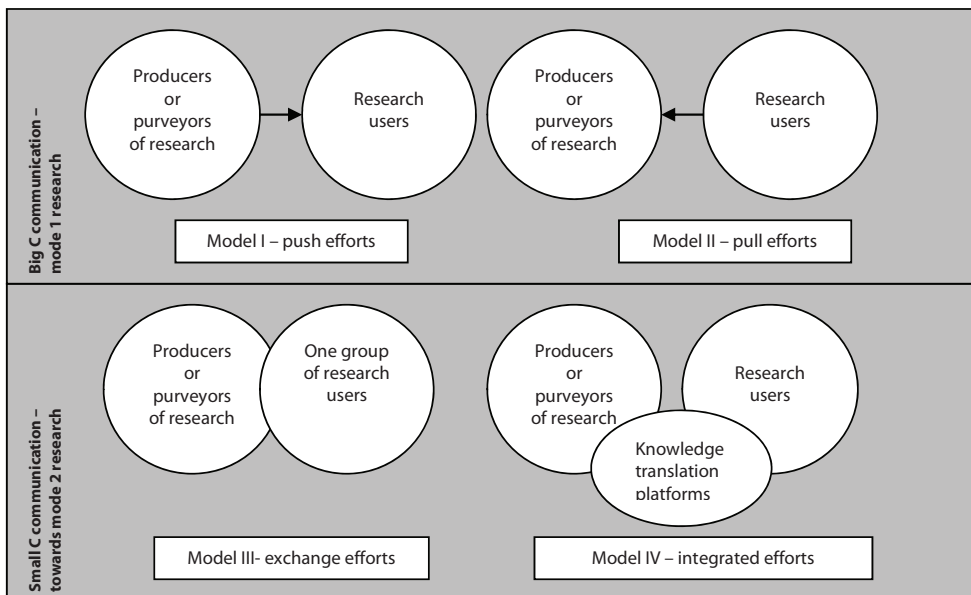
### **Towards an interactive model of knowledge production and innovation**

Facilitating a match between push and pull for research results and stimulating a dialogue between research users and producers is an important role for knowledge brokers. This requires an understanding of the process of knowledge production. Here, a distinction



can be made between information and knowledge (Lee & Garvin, 2003; Wolf, Just, & Zilberman, 2001). Whereas knowledge is context specific and often tacit, information is decontextualized and generalized knowledge that is made explicit. Information can be exchanged in different forms, but meaning is constructed only in interaction with the existing knowledge base of the recipient. This implies that knowledge is always created in a dialogue between a knowledge producer and a knowledge user, and that there are in fact no clear boundaries between the two (Lee & Garvin, 2003; Sarewitz & Pielke, 2007). Knowledge creation is hence a process of co-creation. Using terms like scientific knowledge transfer ignores the fact that knowledge is actually information whose certainty is context-dependent, and in this context its interpretation and the giving of meaning determines its effective use (Landry et al., 2006; Rogers, 2008). This implies that one should actually speak about scientific information transfer rather than knowledge transfer.

Lavis et al. (2006a) summarized four approaches to link research to action using knowledge brokering, being: Model I: push efforts, Model II: pull efforts, Model III: exchange efforts, and Model IV: integrated efforts. These approaches are summarized in figure 3.1. In this regard, Bielak et al. (2008) describe communication to address research push and user pull as Big C science communication, which connects to the notion of information transfer. This communication is intended to make research results widely available and understandable for different audience of users for instance, through reviews, leaflets, and



**Figure 3.1** Research-to-action models (based on Lavis et al., 2006, combined with Bielak et al., 2008).

summaries (Bielak, Campbell, Pope, Schaefer, & Shaxson, 2008). As no active knowledge co-creation process is facilitated, the effectiveness of such information transfer is highly dependent on the capacity of the user to absorb this information, and on a conducive context for implementing it.

Such passive information transfer efforts can also be accompanied by personally tailored consultancy services. Such exchange and integration efforts are labeled as *small C science communication*, as they create interaction between research producers and users, directly or mediated, for instance through knowledge brokers, without direct interaction. Good relationships between researchers and end-users appear to be a necessary precondition to create understanding and trust and bridge the radically different processes of the academic world versus the daily life of practitioners (Jessani & Reid, 2008; Lavis, 2006a; Lavis et al., 2003). Hence, this can be seen as a process of active knowledge co-creation. More and more it is being acknowledged that, for effective research utilization, the needs and wishes of end-users should be central. Jacobson et al. (2005) note a decline in prescriptiveness and a trend towards working collaboratively with end-users, i.e. Small C communication, also in the case of Model I: push efforts (Jacobson et al., 2005).

As Lavis et al. (2006) and Jacobson, Butterill, and Goering (2005) argue, there are several user groups, thus there is more than one approach and not every approach will work in all situations. Whereas Models I and II will work for relatively straightforward problems with clear solutions, complex issues call for Models III and IV (Jacobson et al., 2005; Lavis, 2006a; Michaels, 2009). Knowledge brokering in one of these forms should be integrally considered by research funders (Goering, Ross, Jacobson, & Butterill, 2010; Lavis, 2006a; Tetroe et al., 2008), who should demand that such activities are connected to the research project in some way.

There is thus recognition that research should involve users to make it more applicable and increase ownership of users (as shown in Models III and IV). Nevertheless, there is often still a clear distinction between researchers as producers of knowledge and policymakers, practitioners, and the public as users of knowledge. Such a distinction is increasingly challenged by current systems perspectives on health promotion and public health (Lapaige, 2010; Naaldenberg et al., 2009; see chapter 2), which highlight the multiple sources of knowledge and the need for a high degree of interaction between heterogeneous actors to enable the process of knowledge co-creation.

The interactive perspective, captured in concepts such as *Mode 2 science* (Jacobson et al., 2004; Lapaige, 2010), offers a different outlook on the division of roles between researchers, policymakers, public health and health promotion professionals, and other relevant actors. As regards production, it is increasingly recognized that it is not only science that produces knowledge, often considered to be explicit knowledge. Practice and policy also create new and useful knowledge often referred to as: experience based expertise, or experiential knowledge; implicit, tacit, or local knowledge (Caron-Flinterman, Broerse, &

Bunders, 2005; Landry et al., 2006; Lee & Garvin, 2003). Hence, although Models III and IV approximate such a Mode 2 science approach, they do not fully embody it.

In this line of thinking, Harris and Lusk (2010) have introduced a broad definition of knowledge producers as people who literally produce research-based, practice based, or experience-based knowledge that can be shared with others (Harris & Lusk, 2010). Knowledge users are people who literally apply research-based, practice-based, or experience-based knowledge to improve their practice. Anyone can produce and apply knowledge to improve practice including researchers, decision makers, policymakers, care providers, persons with lived experience, etc. Knowledge co-creation thus implies going beyond linking research to action by combining different bodies of knowledge. This relates to, for example, practice-based knowledge on how evidence-based knowledge functions in specific local contexts (Contandriopoulos et al., 2010). It also relates to issues not well described by research-based knowledge, or to procedures, habits, and culture of health promotion professionals and policymakers. Assessments of the relevance of certain research topics or questions and the desirability and appropriateness of solutions in complex and changing circumstances is also a body of knowledge.

Furthermore, recent thinking has shown that considering only knowledge in the promotion of change and innovation is not sufficient, the appropriate contextual conditions must be created for such knowledge to become effective (Best & Holmes, 2010; Caron-Flinterman et al., 2007; Greenhalgh et al., 2009; Satterfield et al., 2009). Interventions in public health and health promotion can be conceptualized as innovations. They comprise a set of recommendations, often based on research, that intend to bring about change in health-related behavior, although they may not be absolutely new for the local environment in which they are implemented. Nowadays, there is an understanding that innovation and learning are complex social interactive processes influenced by different interests, perceptions, and contexts through networks of actors (Best & Holmes, 2010; Greenhalgh et al., 2009).

This multiplicity of factors that co-determine innovation is integrally considered in the so-called innovation systems perspective. Although some authors have reviewed several approaches from the innovation studies domain relating to research use and knowledge brokering in health-related sectors (e.g. Estabrooks et al., 2006; Jacobson, 2007), innovation systems thinking appears to have been applied only to a limited extent and often with a focus on medical technology development (e.g. Caron-Flinterman et al., 2007; GroL, Bosch, Hulscher, Eccles, & Wensing, 2007; Landry et al., 2006; Lindstrom, 2003; Marceau & Bari, 2001; Savory, 2009).

The continuous evolution in knowledge translation research has recently yielded the *integrated knowledge translation perspective* as comparable to the *innovation systems perspective* (Lapaige, 2010). This perspective however, appears to be less developed and operationalized. In the following sections, we therefore apply an innovation systems perspective to public health and health promotion.

## Implications for public health and health promotion knowledge infrastructures: towards innovation systems

Many organizations have a dedicated role and mandate to contribute to the generation and exchange of knowledge to stimulate learning and innovation to improve public health and health promotion. Such organizations form part of the so-called knowledge infrastructure. A knowledge infrastructure has been defined by Smith as: the “complex of public and private organizations whose role is the production, maintenance, distribution, management, and protection of knowledge” (Smith, 1997; p 94-95). Whereas the definition of a knowledge infrastructure emphasizes actors with a formal role, such as research, the innovation systems perspective follows an interactive view on knowledge creation and exchange. Research is considered as one amongst many actors within a network configuration.

An innovation system is defined by the World Bank as: “a network of organizations, enterprises, and individuals focused on bringing new products, new processes, and new forms of organization into economic use, together with the institutions and policies that affect the way different agents interact, share, access, exchange, and use knowledge” (World Bank, 2006; p 6-7). Furthermore, it emphasizes that institutions as *rules of the game* play an important role in the functioning of knowledge infrastructures. Institutions are structures and mechanisms of social order and cooperation governing the behavior of a set of individuals within a given human collectivity, and thus concern norms, values, rewards and incentive structures. So they determine how actors do or do not cooperate for innovation.

As also mentioned in the introduction, in the knowledge brokering literature considerable attention is paid to institutional factors that influence knowledge exchange (Choi et al., 2005; N. Jacobson et al., 2004; Jansen et al., 2008). However, these analyses often focus on bilateral interfaces such as: research vs. policymaking and researchers vs. patients. Applied to the public health and health promotion field, institutions touch upon issues such as: what is perceived as the definition of “good” knowledge; the organization of research financing and the way research priorities are set; political processes that determine the overall vision for the field; and also norms, values, motives and objectives of people in their everyday work. These institutions all influence how people select information, how they interact, and thus how they learn (Armstrong et al., 2007; Best & Holmes, 2010).

Current thinking on innovation highlights the fact that innovation is a co-evolutionary process (Best & Holmes, 2010; Caron-Flinterman et al., 2007; Geels, 2004; Smits, 2002). It requires mutual rearrangements in various parts of a system in order to successfully turn research findings, a technology, an intervention, into an innovation e.g. an invention that has economic or social value. This implies that the institutions component in innovation systems also embodies the institutional change needed to enable knowledge to become effective by achieving co-creation, not just to enhance the sharing of knowledge.

However, this appears to receive less emphasis in the knowledge translation literature, although it has been observed that *evidence seldom has a rationally linear impact, given*

*the complexity of the decision-making context*, (Mitton et al., 2007). This highlights the importance of formal and informal institutions for decision making and the fact that change involves different professions (Best & Holmes, 2010; Zwarenstein & Reeves, 2006). To take an example from health promotion, a healthy communities approach requires changes in the way neighborhoods are planned and built, coordination between local health and welfare professionals, intersectoral governance, etc. (Wagemakers, 2010).

Innovation systems have been found to have different overlapping boundaries, such as: national, sectoral, regional, and technological innovation systems (Hekkert, Suurs, Negro, Kuhlmann, & Smits, 2007; Malerba, 2002). Although innovation systems take a highly interactive and multi-actor perspective on knowledge production and exchange, implying that there is no clear distinction between knowledge producers and knowledge users (Harris & Lusk, 2010; Jessani & Reid, 2008), there are still many attributed societal and economic roles. Sarewitz and Pielke state that: *“knowledge producers and knowledge users are not conceptually discrete or fully coherent but while notions of ‘supply’ and ‘demand’ may embody considerable complexity, they also represent something real and recognizable: on the one hand, people conducting research that has been justified in terms of particular societal outcomes, and on the other, people making decisions aimed at contributing to those outcomes”* (Sarewitz & Pielke, 2007). That is why for analytical purposes in innovation systems, from a knowledge production and exchange perspective, there is also a division between demand, supply, and intermediary actors, depending on their societal and economic position. These function within a broader policy and societal environment that sets enabling and constraining factors, in the sense of funding, regulation, societal support or opposition, which in turn set preconditions for adequate interaction and functioning of demand, and intermediary and supply actors. Furthermore, there can be a difference between roles that actors attribute to themselves and the roles other attribute to these actors (Koelen, Vaandrager, & Wagemakers, 2008).

## Principal goal and research questions

Improving active knowledge exchange is an area that funding agencies such as The Netherlands Organization for Health Research and Development (ZonMw) prioritize because of the recognized gap between research, practice, and policy, and because of the pressures on public health and health promotion organizations to be accountable to their funding sources (Tetroe et al., 2008; van Kammen, de Savigny, & Sewankambo, 2006). ZonMw expressed concern about the fact that research-based public health and health promotion knowledge and evidence-based interventions were not sufficiently used to enhance innovations in public health and health promotion policy and practice. Therefore this study was carried out within the Dutch public health and health promotion knowledge infrastructure, but broadening the perspective on knowledge production, exchange, and use beyond research knowledge and hence considering it as a sectoral innovation system.

The goal of this study was to investigate the underlying institutional mechanisms and innovation system failures that explain the assumed sub-optimal use of research-based knowledge. Thus, while following an innovation systems perspective, in which several functions matter for innovation, we nonetheless directed our analytical focus to the functions of knowledge production and exchange. However, following Harris and Lusk, the notion of knowledge was broadened to research-based knowledge, practice-based knowledge, and the knowledge based on the lived experience of citizens (Harris & Lusk, 2010).

The principal research question was: *Which factors influence the interactions between different stakeholders in the public health and health promotion innovation system and what does this imply for knowledge production and exchange, and consequently innovation?*

## **METHODS AND APPROACH**

The research process can be divided into four consecutive steps which will be elaborated on in this section.

### ***Step 1: Mapping of actors***

To gain a good insight into the functioning of the public health and health promotion innovation system, variety within the sample was desirable, and actors from different categories needed to be represented. In order to achieve this variety, this study used a preliminary inventory of key actors. The enquiry was therefore built on an initial mapping of the Dutch public health and health promotion innovation system. By using a short email survey study, an inventory of stakeholders was compiled. In this survey, a broad group of 60 respondents at the management level from the Dutch public health and health promotion sector (response rate of 50%) acted as key informants. Respondents were asked to provide a top five of knowledge sources in their daily practice and to name five main users of the knowledge they produce. The overview of key actors obtained in this way, enabled the selection of interviewees for in-depth interviews as described in step 3.

### ***Step 2: Analytical framework***

A matrix to assess innovation system functioning, based on existing literature in the field of mobility, agriculture, and water management, was used to guide the analysis of underlying institutional mechanisms of interaction (Gildemacher et al., 2009; Klein Woolthuis, Lankhuizen, & Gilsing, 2005; van Mierlo, Leeuwis, Smits, & Klein Woolthuis, 2010). Given the focus of this matrix on generic factors that determine innovation system functioning, unconnected to a particular sector, this matrix can also be applied to the public health and health promotion field.

The matrix was based on the premise that for innovation systems to function there is a need to have: 1) shared visions; 2) well-established linkages and information flows amongst different public and private actors; 3) conducive institutional incentives that enhance cooperation; 4) adequate market, legislative, and policy environments; 5) and well-developed human capital. However, these needs are not always fulfilled. Deficiencies have been characterized as *innovation system failures* (Klein Woolthuis et al., 2005). To assess innovation system performance, these failures, or less strongly formulated as imperfections, can be studied in a structured way, and can conversely also be used to indicate positive *innovation system merits*. Four categories of *innovation system failures* can be distinguished being:

1. **Infrastructural failures:** these concern the absence or dysfunction of the physical infrastructure such as railroads and telecoms, and the lack of an adequate knowledge infrastructure comprising science, knowledge brokering or consultancy, and education.
2. **Institutional failures:** these can be split into hard and soft institutions. Hard institutional failures refer to formal mechanisms that hinder innovation. Examples are: unfavorable regulatory frameworks and funding schemes, short-term-focus in policy planning horizons and inadequate intellectual property right laws. Soft institutional failures concern norms and values. These relate to: differences in perceptions on the way business should be done, diverging ideas on what is good knowledge, and differences in incentive and reward systems.
3. **Interaction failures:** these address networks that are either too strong or too weak. Strong network failures are caused by actor groups that cooperate so intensively that they may become inward looking and lack contacts outside their network that may provide new insights. Such strong networks typically lack bridge builders to other worlds. Sometimes strong networks are also forced to stay in such a situation because power balances prevent them from switching or including partners. Weak network failures address the opposite in that new contacts never mature to a point at which parties understand each other and build trust to successfully cooperate.
4. **Capability failures:** these failures concern entrepreneurship and adequate staff qualifications. Organizations have to possess the necessary skills and resources to internalize new knowledge and technologies and assess their value and applicability to the organization.

These failures bear resemblance to those found in the literature from the public health and health promotion field. By combining the failures with the actors active in the innovation system, a matrix to guide analyses, as shown in figure 3.2, can be composed.

Actors \ Failure categories	e.g. researchers	e.g. policy makers	e.g. practitioners	e.g. patients
Infrastructural failure				
Institutional failure				
Interaction failure				
Capabilities failure				

**Figure 3.2** The innovation system failure matrix (after: Klein Woolthuis et al., 2005).

### **Step 3: Interviews**

**Participants:** A total of 33 respondents, selected on the basis of the initial mapping of actors, participated in this study. Table 3.1 provides an overview of respondents and the actor category they represent within this study. All respondents were contacted by telephone to make an appointment and received information about this study. The personal in-depth and semi-structured interviews were conducted on site from March through June 2009. The average interview length was 90 minutes.

**Topics and approach:** the nature of the main objective of this study and the focus on experiences relating to knowledge use required methods that are sensitive to personal experiences and some extent of structuration to enable comparisons of experiences. A qualitative design using semi-structured interviews was therefore appropriate. Interviews were structured using a topic list derived from the innovation systems perspective as outlined above. The interviews focused broadly on how researchers, intermediaries, practitioners, and policymakers identified problems, and on how they used, produce, and exchange research-based, practice-based, and experience-based knowledge. Interview topics also concerned contextual conditions and the capacity of interviewees and their respective organizations to influence research agendas and make use of available knowledge.

### **Step 4: Analytical process**

All interviews were recorded with permission of the interviewee and transcribed (intelligent verbatim style). Interviewees received full transcripts of their interview and were asked to approve them after which transcripts were anonymized. None of the interviewees asked for major revisions in the transcript. The analytical process was supported by the use of software package ATLAS.ti. for qualitative analyses.

The data were analyzed in three subsequent steps. The first broad segmentation of data used a pre-defined coding scheme based on the categories: 1) problems and challenges and related demands for knowledge or other resources, 2) production of knowledge, and 3)



**Table 3.1** In-depth and semi-structured interview participants

Organization	Actor-Category-domain
Dutch Institute for Alcohol Policy	Supply/ Broker
Dutch General Practitioners Association (NHG)	Broker
Wageningen University/ Community Health Service Gelre-IJssel	Broker/Demand
Schuttelaar & Partners, consultancy firm in food, agriculture, and health	Demand/Broker
Albert Heijn, Supermarket (marketing)	Demand
Municipality of Delfzijl	Demand
The Healthcare Inspectorate (IGZ)	Preconditional
National Institute for Public Health and the Environment (RIVM)	Broker
University of Amsterdam, Academic Medical Centre (AMC)	Supply
Netherlands Youth Institute (NJI)	Broker
RIVM Centre for Healthy Living (CGL)	Broker
Netherlands Institute for Health Promotion (NIGZ)	Broker/Demand
UVIT/MedicInfo	Preconditional
University of Applied Sciences Arnhem-Nijmegen (HAN)	Supply
Ministry of Health, Welfare and Sport (VWS)	Preconditional
Community Health Services /University of applied science Rotterdam	Demand
Netherlands Organization for Health Research and Development (ZonMw)	Preconditional
Okapi Consultancy	Preconditional
Organization of Care Providers (ActiZ)	Preconditional
Community Health Services Utrecht	Demand
Covenant Overweight	Broker
Association of Community Health Services (GGD Nederland)	Broker
Trimbos Institute	Supply/Broker
Free University Amsterdam (VU)	Supply
Health Council	Preconditional
Netherlands Association of Dieticians (NVD)	Preconditional
Agis Health Insurances	Preconditional
Community Health Services Fryslán	Demand
The Dutch Nutrition Centre	Broker/Demand
The Association of Dutch Municipalities (VNG)	Broker/Demand
Wageningen University, Health & Society	Supply
The Netherlands Institute for Sport and Physical Activity (NISB)	Broker/Demand
Addiction care, Parnassia BAVO group	Broker/Demand

exchange activities that tailor knowledge to the user context. In the second step, excerpts were linked to corresponding slots in the innovation system failure matrix. Finally, this completed matrix provided an overview of the Dutch public health and health promotion innovation system.

During the analytical phase, all authors of this paper had frequent contact and discussed and assessed the outcomes of each step in the analysis. Respondents all received the final report of this study and were invited to a workshop conference in which the results were presented and discussed.

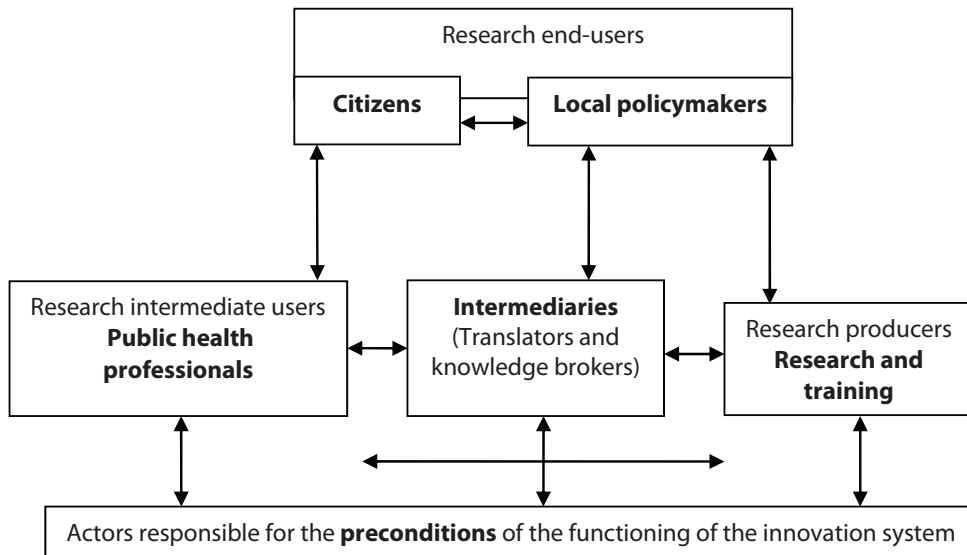
## RESULTS

Public health and health promotion, the focus of this article, may be considered a sectoral innovation system. In this results section, we report on the mapping of actors in this innovation system and on imperfections identified within this system.

### The mapping of actors and their relationships

Since the public health and health promotion innovation system depends on the activities of a wide range of actors, it should be noted that many actors have more than one role: they are for example both research organizations and knowledge brokers. Also, role attribution of actors themselves and others differ. With these provisos, the Dutch public health and health promotion innovation system is visualized in figure 3.3 and can be characterized by the presence of the following actors:

- Actors responsible for the preconditions of the functioning of the innovation system consisting of regulatory agencies and financial agencies. This includes health funding agencies (ZonMw), the Ministry of Health, the Ministry of Youth and Families, the Dutch Health Council, association for professionals such as the Dutch Association for Health Promotion and Disease Prevention (NVPG), and health insurers.
- Research producers and training organizations such as universities, the National Institute for Public Health and the Environment (RIVM), TNO Knowledge for Business, the health promoting institutes, the municipal health services, the Netherlands Youth Institute (NJI), Netherlands School of Public and Occupational Health (NSPOH), and the Trimbos Institute (a centre of expertise on mental health and addiction).
- Public and private intermediaries such as the Association of Dutch Municipalities (VNG), the RIVM Centre for Healthy Living (CGL), the Association of Community Health Services (GGD nl), the Association for Health Insurers (ActiZ), the Netherlands Institute for Health Promotion (NIGZ), and private consultants. The Centre for Healthy Living is an important government-supported player established as a systemic interaction promoter. The centre was established in 2007 and aims to promote the use of so-called evidence-based interventions and best practices (Brug et al., 2010). This involves preparing, and enabling access to descriptions of different kinds of evidence-based effective interventions. A special panel of scientists, policymakers and practitioners judges the interventions according to specific criteria.
- Public health and health promotion professionals employed by: Community Health Services (GGD), municipalities, home care, youth care, addiction care, welfare organizations, general practitioners, or as: dieticians and nurses.



**Figure 3.3** The public health and health promotion innovation system in The Netherlands (based on Arnold & Kuhlmann, 2001).

- End-users of knowledge and intended beneficiaries of innovation such as citizens (the public) and policymakers.

## Findings

The public health and health promotion innovation system failures found in this study are presented in table 3.2. As described in the methods section, different types of systems failures are cross-tabulated against the relevant actors in order to provide a structured insight into the functioning of the system, as well as to obtain an overview of failures that are shared across actor groups.

The generic, most prominent system imperfections are visualized in figure 3.4. They draw on the raw data, in the form of respondents' quotations, selected for best articulating the discourse arising in relation to a theme. The system imperfections include 1) unclear role divisions and task perceptions between domains, 2) predominance of knowledge exchange activities of a Big C communications character, 3) research priorities are determined by powerful players in isolation from intended users, 4) competition engendering fragmentation, 5) experience-based knowledge is excluded: the "evidence debate," and 6) lack of capacity among users to embed research findings, influence research priorities, and interact. We briefly discuss them below.

**Table 3.2** Innovation System Failures Matrix

System failures	Supply domain: Research producers and training organizations	Intermediary domain: Translators and knowledge brokers	Demand domain: Public health professionals	Demand domain: End users such as citizens and local policy makers	Preconditional domain: Organizations responsible for rules and regulations such as funding agencies, ministries and health insurers
Infrastructural failures		A system broker function is currently not being fulfilled.	Available staff in organizations is often limited. Personal competencies are not certified. Professionals have limited access to knowledge in terms of sources and available time.	Knowledge resources are limited in accessibility.	Lack of an organization that determines quality standards for knowledge.
Capability failures	Researchers often lack capacities to facilitate and participate in more interactive ways of knowledge creation.		Professionals lack capacities to translate their questions into the research priorities. Not all professionals are capable to assess the effectiveness of projects. Municipalities experience insufficient capacity to deal with health-related issues. There exists a dependence on researchers to formulate project proposals for research funding.	The financial opportunities to invest in knowledge development are limited.	There is an emphasis on linear and dissemination approaches towards knowledge exchange. More awareness and experience with systems and innovations thinking is needed.

<p>Hard institutional failures</p>	<p>Scientific publication in peer reviewed journals is a prerequisite to funding and the major goal in research proposals. Stakeholders vary in their planning horizons and working routines. There is strong competition to obtain funding.</p>	<p>Standards by which knowledge is being judged are not always agreed upon by people who apply them (ambiguous). Standards are often perceived as too strict or not applicable in practice. There is a variation in working procedures and planning horizons.</p>	<p>There exists no clear role division between local professionals from different organizations working within the same, often municipal, setting. There exists variation in working procedures and planning horizons.</p>	<p>Research producers give little attention to concerns of end users.</p>	<p>Direction and design of the public health research agenda is steered by policy decisions. Emphasis on cost effectiveness. Role divisions between national stakeholders are unclear. Knowledge users "pull" efforts are not sufficiently supported by preconditions. There is a lack of informal exchange opportunities. Proposals to obtain funding require extensive preparation. Funding mechanisms mainly support fundamental research. There is only marginal space for participatory research and knowledge co-creation.</p>
<p>Soft institutional failures</p>	<p>The focus on lifestyle-related themes is dominant. Randomized controlled trials and quasi-experimental designs are the golden standard to create explicit, systematic, and replicable knowledge. Practice-based research is undervalued. Therefore, no responsibility is felt to explicate and use this type of knowledge.</p>	<p>The focus on lifestyle-related themes is dominant. Knowledge brokering actors are not perceived as sufficiently neutral to fulfill this role. Intermediaries do not feel responsible for facilitating active knowledge exchange and connecting stakeholders. No responsibility is felt to use implicit knowledge.</p>	<p>The practical and pragmatic decisions dictate priorities. In large regions, the Community Health Services take account for initiatives whereas municipal policy makers do so in smaller regions, resulting in differences in role perceptions. Scientific or political arguments overrule practical issues in priority setting. Professionals have a passive attitude towards research and scientific approaches in their work.</p>	<p>Citizens and policy makers have a passive attitude towards the research process. Scientific or political arguments overrule practical issues in priority setting.</p>	<p>Fundamental research aims for a high scientific status and has precedence over practice-based research. Research-minded stakeholders often feel little responsibility for explicating implicit and practice-based knowledge. Health promotion research tends to focus on lifestyle-related themes.</p>

Table 3.2 continues on next page

**Table 3.2** *Continued*

System failures	Supply domain: Research producers and training organizations	Intermediary domain: Translators and knowledge brokers	Demand domain: Public health professionals	Demand domain: End users such as citizens and local policy makers	Preconditional domain: Organizations responsible for rules and regulations such as funding agencies, ministries and health insurers
Interaction failure: strong network failures		Several ad-hoc initiatives to create network structures induce fragmentation. Networks consist of too many actors with overlaps in roles and contributions.	In large regions the community health services are responsible for initiatives. Municipal policy makers are responsible in smaller regions. This results in differences in role perceptions. The involvement of end users often results in pseudo-participation in which they are not equal partners. Public health professionals perceive a lack of appreciation for important results like: involving stakeholders, advocacy, and the facilitation of local processes.		Priority-setting occurs in relatively closed circles with a shared value frame. Therefore, stakeholders that might provide necessary input are not involved in priority setting.
Interaction failure: weak network failures	Role definitions and divisions are unclear. There is a limited dialogue between researchers, policymakers, and professionals. As a result, opportunities for social learning and co-creation are limited.	With regard to information transfer, role divisions are unclear. There is limited dialogue between researchers, policymakers, and professionals. As a result, opportunities for social learning and co-creation are limited.	The collaboration and dialogue between researchers, policymakers, and practice during the conceptualization, production, and dissemination stage of the research process is limited. Active knowledge exchange and networking is limited.	Opportunities to exchange experiences and engage in dialogue in order to interactively produce knowledge are limited.	

<b>Actors</b>	Supply domain; Researchers and training institutes	Intermediary domain; Knowledge brokers	Demand domain; Knowledge users in different forms	Preconditional domain; Funders, regulation setters, societal watchdogs
<b>Failure categories</b>				
Infrastructural failure				
Institutional failure - Hard - Soft	Evidence based debate about "good" and "bad" knowledge	Unclear role divisions between domains Competition engendering fragmentation		Powerful players determine research priorities
Interaction failure - Weak network failure - Strong network failure	Predominance of passive knowledge exchange	Experience based knowledge is excluded	Lack of capacity to use and influence research	
Capabilities failure				

**Figure 3.4** The innovation system failure matrix for Dutch Public Health and Health Promotion.

### ***Unclear role divisions and task perceptions between domains***

Respondents had diverse perceptions regarding tasks of actors in the different domains (soft and hard institutional failure). One point of discussion concerned perceived responsibilities of researchers and training institutes (supply domain). Some respondents stated that these actors should produce only scientific knowledge, whereas others expressed preference for a more interactive perspective – integrating research activities with policy and practice. Moreover, researchers felt no responsibility for integrating implicit knowledge, and fundamental research has precedence over practice-based research because it has a higher status (soft and hard institutional failure). The following quote by an interviewee illustrates this:

*Why are research results not being used? You could also say to researchers that the research they do is useless if it is not being used. I think our government mainly takes a science perspective and has little consideration for practice.*

A similar unclear role division and task perception was reported on a local level. Interviewees said that they expected municipalities to take the lead in local public health and health promotion innovation processes and that the GGDs support this process. However, how these roles are divided depends a lot on the local context. In some regions, the GGDs take the lead, whereas in others the municipalities are the main coordinators.

Besides unclear national and local role divisions, there is also confusion about responsibility for knowledge transfer and exchange between the national and the local level. The national health promoting institutes produce a lot of theme-related research

knowledge such as: nutrition, physical exercise, smoking, etc. The Community Health Services and municipalities have general practice-based and experience-based knowledge about the local habits and culture. However, actively sharing, integrating, and using these different types of knowledge, although stated to be desirable, is lacking on both sides.

The Dutch public health and health promotion innovation system is also characterized by a large number of intermediaries, such as the Dutch Centre for Healthy Living and national health promoting agencies, who perceive themselves as knowledge brokers. They mainly perceive this as communication of a Big C nature and describe research knowledge in easily accessible formats or translate scientific knowledge into ready-made interventions. Interviewees within the demand domain however, state that they need knowledge brokers who actively manage interaction also described as small C capabilities. Intermediaries as well as researchers reported that they did not see it as their main task to connect stakeholders or to create contextual conditions for research-based knowledge to become effective.

Related to this role perception is the finding that the neutrality of some of the knowledge brokers was being questioned. This connects to the extent to which they act as *messengers* following a certain research or policy focus, and thus have an economic stake in selling certain knowledge. On the basis of interviews, it became clear that various stakeholders outside the academic domain disagree with the quality standards for evidence-based-labeled public health and health promotion interventions of the Dutch Centre for Healthy Living or perceive them as too strict and not applicable, all of which makes them doubt the credibility of the Dutch Centre for Healthy Living as a neutral “systemic broker” connecting actors from all the different innovation system domains (soft institutional failure).

Related to this finding is the result that local and national knowledge brokers who do make attempts to combine different bodies of knowledge do not feel rewarded for efforts like: connecting stakeholders, advocacy, and sharing successes. Integrating and co-creating activities are not a formal part of their job description, and this hinders knowledge exchange and seeking. This can be seen as a hard institutional failure.

Actors in the demand domain, on the other hand, are not very active in demanding. An active attitude of searching for knowledge is not obvious in the daily practice of health professionals and local policymakers.

Finally, funding agencies urge researchers to integrate activities with the demand domain but do not always recognize that they themselves also have a role to play.

### ***Predominance of knowledge exchange activities of a Big C communications character***

In relation to the point raised in the previous section about unclear role perceptions, several respondents indicated that there appears to be an inadequate match between the supply of, and demand for, *knowledge products*: the linear model of passive information transfer, or Big C communication, in the form of reports, databases, and websites is the most common form of implementation of this brokerage role. Actors in the demand domain



mainly express a need for active knowledge exchange, or Small C communication, such as co-creation including the building of relationships and regular contacts. The following quote illustrates this:

*You can make a digital source but that is often not used. When you sit around the table with people who have experience with a certain method or approach, you can ask detailed questions and make further appointments to discuss the details.*

According to different interviewees, local public health and health promotion professionals seem to combine experience-based expertise and scientific knowledge and therefore interviewees prefer knowledge products with best principles rather than predetermined implementation plans that are prescriptive in nature. The following quote conveys this:

*(..) sometimes it is so specific that you wish the products to be described more broadly so that you do not need a separate script for each target group (..) You can also say: the influential mechanism or the most important ingredients (..) are this and that. Then we do not need separate scripts for migrants, women, children, etc.*

### ***Research priorities are determined by powerful players in isolation from intended users***

In all domains, actors expressed the need for research or knowledge production. Health professionals, for instance, face problems in daily practice and gather information or ring up colleagues to discuss the issues at stake. These types of concerns, however, hardly reach the official research agendas. Interviewees indicated that local policy makers, health professionals, and citizens or the intended knowledge users, have little influence on the direction and design of the public health and health promotion research agenda. A majority of interviewees considered priority setting to occur in relatively closed circles of a small selection of researchers and policy makers with a shared value frame – excluding certain directions (strong network failure and soft institutional failure). Main themes on the research agenda relate to cost effectiveness and individual behavioral healthy lifestyle themes and do not always match the more underlying structural concerns of local public health and health promotion professionals, such as health inequalities.

Powerful players from the policy domain such as the Ministry of Health, the Health Council, and research organizations also determine financing and evaluation structures. This hampers the innovation of the public health and health promotion system as this does not allow for new networks, search directions, and solutions to emerge. This relates to strong network failures.

In some cases public health and health promotion professionals are involved in the research process. However, often this is some form of *pseudo-participation* where in reality

their input is limited to having a consultative role, but no really equal voice or decision-making authority. Furthermore, there exists a perceived tension between their work in a local setting, and the higher aggregation levels where priorities for research are set. In practice, it is the local context that determines their work and choice of priorities, but this differs greatly across regions. In a larger region, the Community Health Services have to take account of the ideas, which are soft institutions, and the policies or hard institutions, of different smaller municipalities.

### ***Competition engendering fragmentation***

Competition for research funding in The Netherlands is tough; this inhibits open sharing of information as it is not strategic to do so (hard institutional failure, strong network failure). This is strikingly conveyed by the following quotes:

*If you are dependent on funding, you want to protect your expertise. If you work together, you can lose things.*

*We need financial support to facilitate linkages between national players and local municipalities. If we leave this to the market, we will lose it. That will widen the gap between the different levels.*

In addition, funding is oriented towards themes (smoking, nutrition, alcohol, etc.) and this inhibits funding opportunities for integrated research projects and general collaboration infrastructures. Overarching themes such as advocacy and participation play a role in several local innovation programs regardless of the health theme. For example, prevention of alcohol abuse or promotion of healthy eating requires similar actors to become involved. Several interviewees stated that they would prefer a general health promotion and public health infrastructure than a new network for each problem:

*Personally I do not think it matters what theme you work on. All partners deal with the same issues, sometimes you need to get other partners involved. So certain structures could overlap, the focus is only on another theme.*

### ***Experience-based knowledge is excluded: the "evidence debate"***

There is a recognition of the existence of various sources of knowledge, but there is no consensus on how to weigh the quality, what knowledge is *good* or *bad*, and how to integrate the more implicit types of knowledge. This is also found in discussions concerning the *evidence debate* (Armstrong, 2007; Greenhalgh, 2009; Satterfield, 2009). Within public health and health promotion research, adherence to randomized controlled trials as the golden standard for creating explicit, systematic, and replicable knowledge, undervalues

practice-based research such as participatory research in real-life settings and experiential knowledge. This is a soft institutional failure. This finding relates to the previously mentioned fact that incentives for cooperation seem to be lacking, referring to both hard and soft institutional failures and weak network failures. For researchers, publishing in scientific journals is a top priority. This creates a disincentive to engage in multidisciplinary and participatory research, since this type of research is harder to publish.

***Lack of capacity among users to embed research findings, influence research priorities, and interact***

Health professionals who wished to engage in research described as complicated the requirements to be met in the research priority setting process or to obtain funding (hard institutional failure). Local policymakers, professionals, and citizens often lack the competencies to write funding proposals (capabilities failure) as illustrated by the following quote:

*If you wish for something in practice, you nearly always need a research institute to formulate your research question in a way that you are able to obtain funding. That is what I find difficult ..., whereas I notice at the same time that they [the funding agency] try to finance the good products and to set quality criteria and that it is important for practice that this happens well.*

Another capabilities failure amongst practitioners regards knowledge use. This does not necessarily refer to cognitive capacities, or mean that knowledge is not offered in an accessible and easily digestible format (a key concern of knowledge brokering). Respondents report a lack of time and specialized and qualified human capacity to engage in knowledge search and use: i.e. engage in knowledge exchange, and be able to judge the quality of the bodies of knowledge relating to certain public health and health promotion interventions. Researchers on the other hand are not trained in Small C communication and lack experience in participatory approaches or managing stakeholder interaction which is a capacity failure. As a result the dialogue between researchers, policymakers, and practice is limited and co-learning insufficient which is a strong network failure.

## **DISCUSSION**

As discussed in the theoretical section of this article, there is a great body of scientific literature on barriers to, and facilitating factors for, effective knowledge use, and how this can be enhanced by knowledge brokering. However, much literature in this area has had a strong bias towards research as the only legitimate source of knowledge, a linear view on knowledge exchange as diffusion with a limited focus on bilateral interfaces. Although

lately these views on knowledge brokering have changed. They recognizing the multi-actor, systemic nature of innovation processes and the appreciate the fact that there are multiple producers of useful knowledge beyond scientific knowledge (Contandriopoulos, 2010; Green, 2006, 2008; Harris & Lusk, 2010; Lapaige, 2010). However, this has not yet been translated into comprehensive perspectives. Following the call of Estabrooks et al. (2006) to explore different theoretical bodies, this article has identified the innovation systems approach as a comprehensive way to analyze knowledge production and use, as well as the contextual factors that influence whether and how effective learning takes place for innovation. In this article, this innovation systems view was applied in response to a feeling of suboptimal knowledge use in a sectoral system of innovation (public health and health promotion), but it has broader applications such as studying country-level conditions for innovation in health sectors. We now discuss some specific findings from the study and derive some theoretical implications in relation to the concerns connected to bridging the know-do gap raised in the introduction to this article.

### **Innovation requires broad linkage building at several interfaces: a need for more Small C communication to support networking**

The communication to make research results available through written material, databases, and consultancy (Big C) science communication receives far more emphasis in The Netherlands than exchange and interaction efforts between the public, policymakers, intermediaries, and research and training. This indicates that ideas on what knowledge brokering entails are sometimes too limited and emphasize just one strand of knowledge brokering work: often aimed at mere transfer of research results. It has become clear from systems thinking (Hekkert et al., 2007; Smits, 2002) that innovation is much more than just implementation of research results, but entails things such as institutional change or changing *the rules of the game* and reordering of the economic and spatial environment. This calls for acceptance that it is essentially about stimulating the formation and functioning of adequate multi-actor networks that differ in size and complexity depending on the issue at stake. However, in terms of the research-to-action models, such as summarized in figure 3.1, this requires that essentially for each problem a *knowledge translation platform* should be formed. In such a platform, there are integrated efforts to enable knowledge co-creation, coupling research-based, experience-based, and practice-based knowledge (Harris & Lusk, 2010). In that case, research is one among many different stakeholders, equally contributing with knowledge, be it scientific or experiential.

Furthermore, such networks self-organize because many actors react to each other's actions in unpredictable ways (Best & Holmes, 2010; Hekkert et al., 2007; Lindstrom, 2003; Mitton et al., 2007). Therefore, knowledge can never be offered in a fixed format but has inherently dynamic properties since it is shaped in interactions. This implies that knowledge brokering should pay much more attention to shaping such multi-actor networks, which may

be small at the local level, for example by involving consultants, practitioners, policymakers, and end-users, or at large when they deal with overarching issues relevant for whole sectors.

Furthermore, this study has affirmed the crucial importance of looking at institutions as *rules of the game*. This encompasses not only those institutions that affect knowledge production and use (as mentioned by e.g. Choi et al. 2005; Lomas 2007) such as publication incentives, or planning horizons. Also those that affect the opportunity to engage in cooperative work in a broader sense should be taken into account. Examples originating from this study are: funding schemes and access to research and innovation agenda setting procedures, perceptions of what is good knowledge, perceptions on what actors are relevant, and the organizational space provided in terms of time input and capacity building.

### **The role of knowledge brokers: towards innovation brokers?**

As our study has shown, although knowledge brokers may well be present in a public health and health promotion innovation system, their capacity can be too limited to stimulate systemic interaction. Beyond stimulating research projects to pay attention to inserting a *knowledge brokering* or communication plan in their proposals (see Goering et al. 2010; Tetroe et al. 2008) concerning how stakeholders are involved in research and how research results are communicated, more attention should be paid to the installation of systemic brokers that transcend the level of research organizations or projects (Klerkx & Leeuwis, 2008; Smits, 2002).

If funding agencies want to enhance the applicability of research and ensure that overall innovation takes place, the above is a key concern. This means that, being research funders, they should also become innovation funders and develop innovation agency (see Gulbrandsen 2005; Klerkx & Leeuwis 2008). Such systemic brokers should act as connectors and matchmakers in fragmented knowledge infrastructures overseeing other knowledge brokers, and give their presence at many system levels. They should also address several other gaps that are not related to the use of research knowledge, such as overcoming found weak and strong network failures, and mediate to resolve hard and soft institutional failures. So beyond knowledge brokers, they have a broader task as innovation brokers (Klerkx & Leeuwis, 2008) such as facilitating a multilateral dialogue.

In this regard, recent innovation systems research has highlighted the fact that knowledge exchange, in addition to knowledge creation, exchange, and use, needs to fulfill several other functions that are essential for innovation. These functions include fostering entrepreneurial drive and activity, vision development, financial resource mobilization, market formation, building legitimacy for change, and overcoming resistance to change by means of advocacy and lobbying (Contandriopoulos et al., 2010; Hekkert et al., 2007) Hence, several additional activities beyond production and exchange of knowledge play a key role, such as policy and legislation formulation, physical infrastructure building or adaptation, creating or adapting innovation funding arrangements, and making use of

market developments. In our study, the Centre for Healthy Living aimed to be such a systemic broker, but it still tended to focus its attention specific interfaces (e.g., between research and policy, or between research and knowledge brokers), whereas innovation depends on mediating at many interfaces.

## Limitations

In this study, the application of the innovation systems framework was limited, as it mainly focused on the function of knowledge production and exchange functions of innovation systems, while not addressing in depth the further functions of innovation systems. This is a task for further research with an innovation systems perspective. A further limitation concerns the fact that a limited number of representatives was interviewed. This might influence the external validity of the findings. However, during the interviews, data saturation occurred. Furthermore, feedback received at presentation of study results at research- or practice-based conferences yielded confirmation of the findings.

## CONCLUSION

Most problems in the Dutch public health and health promotion innovation system are not uni-dimensional but consist of a complex mixture of causes and effects, and involve several actors. By using the innovation systems framework to analyze the Dutch public health and health promotion innovation system, the principal obstacles to innovation relating to knowledge production, exchange, and use were identified. The obstacles identified included unclear role divisions, lack of incentives for integrating and co-creating activities including job descriptions allowing for interaction, competition for funding, exclusion of experience-based knowledge, and lack of research financing and evaluation structures. There is also a lack of capacity: knowledge users' capacity to influence the research agenda or write research funding proposals and researchers' capacity to stimulate systemic interaction. Knowledge brokers could have a role in creating better linkages, but they predominantly translate scientific knowledge into ready-made innovations in the form of reports, databases, and websites that often remain sub optimally used, rather than actively managing interaction for knowledge co-creation. An important first step for public health and health promotion innovation and effective learning is a more central role for users and a better understanding of the user context, better support structures for integration and collaboration, and the creation of contextual conditions for knowledge to become more effective. Opportunities for linking research to action can be found in improving the capabilities among users to absorb several kinds of knowledge from several sources in order to resolve specific issues at hand (i.e. form the right knowledge networks) and better skills to connect and interact with users (Small C communication) among researchers and knowledge brokers.

However, beyond the context of the Dutch public health and health promotion system, the generic message of this article relates to its application of a systemic perspective on knowledge production, exchange, and use. Rather than just speaking about linking research to action and bridging the know-do gap, an innovation systems view, in which research is one amongst many stakeholders, implies speaking in terms of linking all kinds of actors in order to enable co-creation of knowledge, and removing institutional barriers to innovation. The systemic view results in a more comprehensive picture of the barriers to, and facilitating factors for, innovation. Choosing priorities for the future hence also implies various changes within different domains and on different levels. This requires a long-term view and integrated policy, and calls for going beyond bridging the know-do gap and knowledge brokering as translation, and having facilitative and systemically oriented innovation brokers covering all aspects of innovation.

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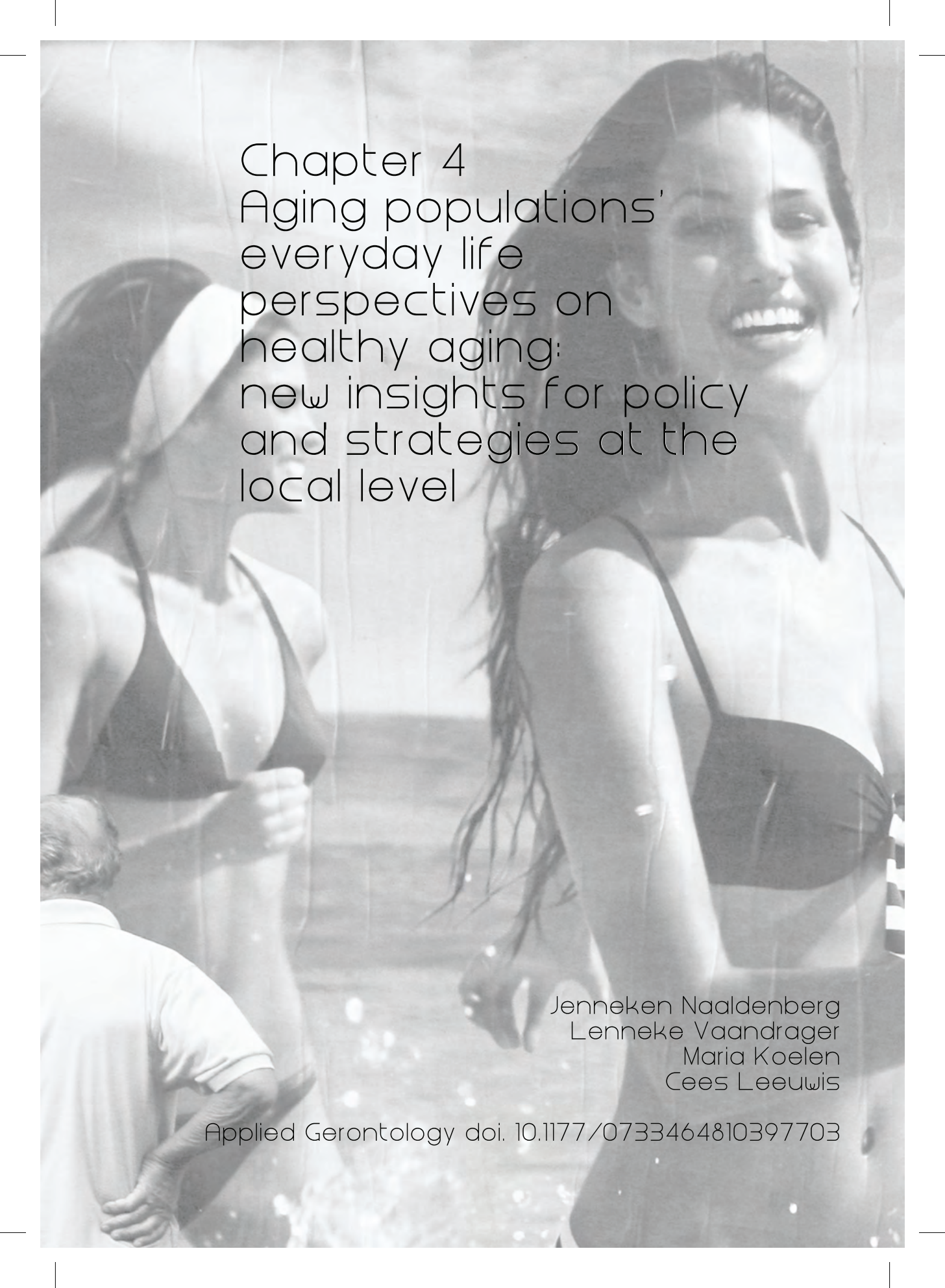
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Chapter 4  
Aging populations'  
everyday life  
perspectives on  
healthy aging:  
new insights for policy  
and strategies at the  
local level

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## **ABSTRACT**

Population aging makes policymakers face the challenge of supporting people as they age. Strategies designed to promote healthy aging should take the viewpoints of this target group into account. To strengthen interventions on healthy aging, this study aims to investigate how aging individuals experience healthy aging in their locality. A salutogenic background was used to ensure a broad perspective on health. Data collected from 79 in-depth interviews (using an Appreciative Inquiry approach) in The Netherlands were analyzed for interviewees' experiences on healthy aging. Results indicate that healthy aging is perceived within the context of everyday life, and interviewees who are content with their health often have an assets-based and positive view on health. Often, however, interventions and facilities address isolated health themes, and such an approach does not match well with these perceptions. Framing interventions positively in terms of assets, resources, and everyday life may increase their effectiveness.

## INTRODUCTION

Policymakers at international, national, and local level find themselves confronted with challenges concerning the increase in size of aging populations. They play an important role in maintaining the vitality and functional independence of older persons by signaling needs, improving services, and promoting healthy aging (Alongi, 2009; Räftegård Färggren & Wilson, 2009; World Health Organisation, 2002). Input on how to support, improve, and guide healthy aging policies, interventions, and activities is essential because the population aged 60 or older is the fastest growing age group in the world. Furthermore, this group itself is aging, as people are tending to live longer, and the proportion of people aged above 80 is increasing rapidly (World Health Organisation, 2002).

Healthy aging is a concept used alongside related concepts such as active aging, positive aging, and successful aging. Räftegård Färggren and Wilson (2009, p. 9) define healthy aging as: “the process of optimizing opportunities for physical, social and mental health to enable older people to take an active part in society without discrimination and to enjoy an independent and good quality of life”. Alongi et al. (2009, p. 3) describe the role of public health professionals regarding aging as: helping to ensure that citizens “are able to live as long, as well and with as much functional independence as possible”. The Dutch policy documents stress the need to beware of seeing aging in terms of problems alone and state that healthy aging starts with a healthy lifestyle at any age (Ministry of Health, 2005). In addition, recent changes in Dutch health policies (WMO) delegate many responsibilities – including facilities for the aging population – to the local level (Ministry of Health, 2004).

To strengthen interventions on healthy aging, this study aims to investigate how aging persons experience healthy aging and supportive facilities in their locality.

### Approaches to healthy aging

Key words such as participation, independence, and quality of life, as well as the need for a positive and integrated approach, are stressed throughout the abovementioned policy documents. This makes healthy aging, like many other health promotion issues, the responsibility of many sectors rather than the health sector alone. The need to incorporate individual, environmental, social, ecological, and political factors, and to approach them from different angles at the same time, results in an increasingly complex process involving many stakeholders (Green & Kreuter, 2005; Koelen & van den Ban, 2004).

The aging populations’ views on healthy aging and available facilities could provide valuable input for policymakers as well as for many other stakeholders. Furthermore, lay perceptions of both the target group and other relevant stakeholders, about health and aging might differ from those used in research and policy making (Phelan, Anderson, Lacroix, & Larson, 2004). For instance, lay perceptions are found to focus more on the social environment and ability to manage restrictions than on the mere absence of disease

(Byrant, Corbett, & Kutner, 2001; Flick, Fischer, Neuber, Schwartz, & Walter, 2003; Flick, Fischer, Schwartz, & Walter, 2002).

The positive tone of many policy documents draws attention to the question of how people stay healthy as they age. The salutogenic perspective is relevant here, because how people manage to stay healthy is its central focus. This perspective focuses on what defines and constitutes health in order to improve health promotion strategies (Antonovsky, 1987, 1993, 1996). To remain healthy, it is important to have access to supportive resources. These resources are defined as *generalized resistance resources* (GRR). Resources can be personal (education, money, lifestyle) and can also be found in the physical environment (housing, neighborhood, workplace) and in the social environment (social network, family, friends). It is equally important to be able to use these resources in a health promoting way. The salutogenic perspective defines this capacity as *Sense of Coherence* (SOC) (Eriksson, 2007a; Lindström & Eriksson, 2005). This capacity can be described by the concepts *meaningfulness* (emotional component), *comprehensibility* (cognitive component) and *manageability* (instrumental component). Together, these components reflect the interactions of an individual with the environment (Antonovsky, 1987, 1993, 1996; Eriksson, 2007a; Lindström & Eriksson, 2005). Individuals with a high SOC are confident that they have control over their situation and know how to act in a health promoting way (Eriksson, 2007a; Eriksson & Lindström, 2008; Eriksson, Lindström, & Lilja, 2007b).

Consequently, aging persons' own perceptions on healthy aging must inform the design of healthy aging programs. This study therefore aims to gain more insight into how aging persons experience healthy aging by answering the following questions:

1. What are aging persons' views on healthy aging?
2. What do aging persons perceive as contributing to a supportive environment?
3. What influences their perceived capacity to use resources?
4. Are existing facilities recognized as relevant and do aging persons know how to use them?

This study is part of the Dutch healthy aging program of the academic collaborative, AGORA. Within AGORA, university and municipal health services work together in order to identify new perspectives and approaches. Three municipalities, in the eastern part of The Netherlands, collaborate closely with AGORA and facilitate research activities.

## METHODS

### Participants

To gain a good insight into different experiences about healthy aging, variety within the sample was desirable. To ensure this variety, interviewees from the three different municipalities (urban, rural, and in between) and different age groups (55-64, 65-74, and

75+ years) were included. Table 4.1 gives an overview of participants across municipalities, gender, and age groups.

Collaborating municipalities (municipalities 2 and 3) or the Community Health Services (municipality 1) provided a sample of 90 inhabitants living independently (i.e. not institutionalized), 30 per age group, for each municipality. The sample was this large because non-response could not be estimated beforehand. From these samples, potential participants were contacted randomly until about 30 interviews (eight to ten per age group) per municipality, were arranged.

Potential participants received an invitation letter from their municipal aldermen (municipality 3) and were contacted by telephone to make an appointment (all three municipalities). Both the letter and the telephone call were used to explain the aim of the research to the participants. During the interview, participants received written information and contact details. Overall, interviewees were interested in participating in this study. Reasons for refusing to participate (n=55) included: not interested, time constraints, spending time abroad, physical condition, and physical condition of partner. The fact that the 55-64 age group were often still working complicated the scheduling of interviews. A total 79 interviewees participated in this study. After about five interviews for each age group, the content of stories started to overlap with previous interviews; this is an indication for data saturation.

## Interview approach

The nature of the research questions and the focus on perceptions and meanings require methods that are sensitive to personal and subjective experiences. In-depth and face-to-face interviews provide this desired sensitivity and were therefore used in this study. A first pre-test of questions indicated that interviewees felt more comfortable with an open style interview than with a more structured questionnaire. The open style made it possible for interviewees to answer according to their own experiences and by storytelling instead of being forced into an interview structure.

**Table 4.1** Description of participants

	Municipality 1	Municipality 2	Municipality 3
Description	Urban character	In between	Rural character
Age group 55-64	3 female / 4 male 2 rejections	7 female / 2 male 6 rejections	7 female / 5 male 8 rejections
Age group 65-74	4 female / 4 male 5 rejections	5 female / 3 male 4 rejections	4 female / 4 male 5 rejections
Age group 75+	4 female / 2 male 3 rejections	6 female / 5 male 9 rejections	5 female / 5 male 13 rejections

A topic list was constructed to guide the open-ended interviews around two main topics:

1. *Health/healthy aging* was addressed by six health-related themes being: loneliness, mobility challenges, care-giving burden, overweight, psychological issues, and falling incidents. These themes were identified in the periodical (four-year interval) aging population survey conducted by the Community Health Services participating within AGORA (Timmerman-Kok, 2006). This survey provides input for healthy aging policies at the local level and thus these themes are relevant to this study.
2. *Municipal context/facilities* within the locality was addressed by a set of seven recent newspaper clippings from local written media. These clippings concerned activities and resources aimed at healthy aging and were selected to cover health, general support, and social and leisure-related activities. Examples included: courses to refresh driving skills, local information guides, leisure activities, activities to prevent falling incidents, administrative help, activities to prevent loneliness, and home information projects.<sup>1</sup>

The health themes and newspaper clippings were used to stimulate discussion, start and guide the conversation but they tended to reflect a risk-oriented approach towards healthy aging. This study however, aimed to include also the positive trend visible in policy documents. An interview style that would prevent interviews from becoming too problem oriented was needed. The organizational change methodology, appreciative inquiry (Cooperrider, Whitney, & Stavros, 2005), was found to provide the necessary positive approach to the interviews. Appreciative inquiry has successfully been used in health promotion and positive aging approaches (Gergen & Gergen, 2001; Melander-Wikman, Jansson, & Ghaye, 2006; Reed, Richardson, Marais, & Moyle, 2008), and as an interview tool (Michael, 2005). In practice, this meant that questions were formulated in a positive way, and both the interviewers' and interviewees' mindsets had to change from a problem-oriented to an appreciative approach. Interviewees were presented with the selected health themes printed on cards. They were asked to give their views on how these themes contribute to healthy aging, their experiences, and best practices if they were to advise others who were confronted with these themes. Discussion of the newspaper clippings focused on which of the clippings most appealed to them, whether they ever participated in such an activity, and what they would recommend to others.

Interviews took place over a period of 2 months in 2007 and were held in the interviewees' own homes. Interviews were conducted by two interviewers (separately), one of them being the first author of this article. The interviewers had frequent contact to share experiences and prevent differences in their approach.

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<sup>1</sup> An overview of these clipping is provided in Appendix II.



## Analytical process

All interviews were audio taped – with the interviewees’ permission – and transcribed afterwards (intelligent verbatim style). Notes taken by interviewers during the conversations were added, after which the documents were anonymized. The qualitative data analysis program ATLAS ti 5.0 (Scientific Software Development) was used to manage the data and keep the analytical process transparent. This software allows the use of pre-defined codes as well as free coding. Attaching memos and notes to fragments and codes fosters transparency in the analytical process. When necessary, audio files were used to confirm transcripts and listen to excerpts within their original conversational context.

The process of coding and categorizing was conducted in four phases. A combination of content analysis (Flick, 2006; Silverman, 2006) and domain analysis (Coffey & Atkinson, 1996) was used, as lay perspectives, folk terms, and semantic relations were essential to answer the research questions. Table 4.2 provides an overview of the kind of data actions, the aims of those actions and whether a top down or bottom up approach was used, for each phase in the analysis.

In the first step, fragments of transcripts were grouped using the research questions, resulting in four groups of fragments with the labels: a) views on healthy aging, b) resources perceived to contribute to supportive environments, c) perceived capacity to use resources, and d) perception of existing facilities. In the next step, within each of these labeled groups, respondent perspective keywords were filtered from fragments. This was followed by a reduction step in which similar keywords were clustered and coded. For group a, the main clusters were: interaction in health themes; indicators of feeling healthy; everyday life context, and positive views on aging. Within group b, the clusters resulted in four categories of resources and proximity/familiarity. Group c clusters were positive and negative experiences with sub clusters, respectively: confidence, initiative, positive approach and confrontations, changes and expectations. Group d clusters related to mismatches, misinterpretations, confusion, and the need for information. Finally, these coded clusters of keywords could be categorized based on their semantic relations.

**Table 4.2** Consequent phases of coding and categorizing

Phase	1	2	3	4
Action	Assigning fragments of transcripts to pre-defined codes based on research questions	Filtering respondent perspective keywords from fragments	Reduction into similar groups and assigning codes	Categorization of reduced data by semantic relationships
Aim	First segmentation of data	Relevant fragments	Coded and reduced data	Themes presented in result section
Approach	Top down	Bottom up	Bottom up	Bottom up

Categories were consequently tested within the data until a final set of categories was reached, providing a rich picture relating to the specific research question as presented in the results section. Quotes provided in the result sections are selected to be representative of interviewees' reactions and experiences as reflected in relation to that specific category.

Within each analytical phase, interpretations and assignments of fragments and codes were frequently discussed by all authors of this paper to crosscheck interpretations. Also, the AGORA project offered opportunities for participant checks with interviewees and triangulation with other older people within the collaborating municipalities, other researchers, and professionals from the health promotion field. This refined the interpretations from the analysis.

## FINDINGS

### Perceptions and views on healthy aging

When interviewees speak of health, they speak of aging, and vice versa. This interrelatedness is illustrative of the way respondents perceive health and aging and is frequently voiced in discussions on the selected health themes. For instance, overweight is perceived as strongly related to other health themes such as mobility (difficult to move around) and loneliness (eating too much out of boredom), but interviewees also mention that overweight is not restricted to a particular age group. In the discussion on the selected health themes, interactions between themes are mentioned frequently:

*It all starts with psychological well-being, doesn't it? That kind of rules out feeling lonely and you probably would be mobile as well. If you feel well, you are better able to care for others. These themes all connect to each other.*

Age in itself is not perceived as a good indicator of how old one feels. Health, engagement, participation within society, and keeping up with the news are mentioned as being of at least equal importance. Thus, someone in his late eighties could feel more vital and "younger" than a person in his early sixties. The following reaction shows that factors other than age in years alone underlie the experience of age:

*The people living across the road are my age. Sometimes I think, I should be able to do the same things they do. And I used to do so in the past but I can't manage nowadays.*

Nor is physical health status the sole factor. Interviewees view the ability to overcome physical challenges and "get on with everyday life" as an important factor in how healthy

they feel. Someone with serious (age-related) physical challenges can be very well able to function to a satisfying level and thus feel healthy, whereas someone with only minor complaints can experience this situation as very restricting. One of the interviewees mentions how her physical problems hardly influence her overall feeling of health as long as she eases down a bit:

*I experience some problems with my legs, but overall I feel perfectly fine. You have to learn to tone down things a bit in life. I have few problems with that.*

When interviewees elaborate on physical challenges relating to aging, the consequences of such challenges are embedded in the context of everyday life. The following interviewee talks about back problems and how it takes some time to recover before things are back to normal. Within the context of this excerpt, the interviewee also stresses the importance of a positive view to how healthy he feels:

*I feel fine when nothing bothers me. For example, when I hurt my back, I will need some time and exercises in the gym to recover again. But overall I have few problems. It is important not to complain too much.*

How a positive approach can influence a feeling of health is strongly illustrated by the comparison of the following two quotes by two different interviewees. Both interviewees had to start using a physical aid for walking (a walking cane and a mobility scooter). The way each one deals with these changes greatly affects how they feel about the aid:

*I should use a cane for walking, but I do not really feel like using it. It is still an aid you know, it makes me feel old.*

*I always use my mobility scooter when shopping. Some people feel strange when using it but I think that is nonsense. I cannot walk those distances anymore, so this is a perfect solution. I do not feel bad about it at all. I just drive into the stores.*

The second quote illustrates how this interviewee's focus is more on the positive attributes of the mobility scooter as it helps to manage physical challenges and increases independence. In the first quote, the interviewee's focus is on the negative attributes of a walking cane, resulting in a feeling of dependence.

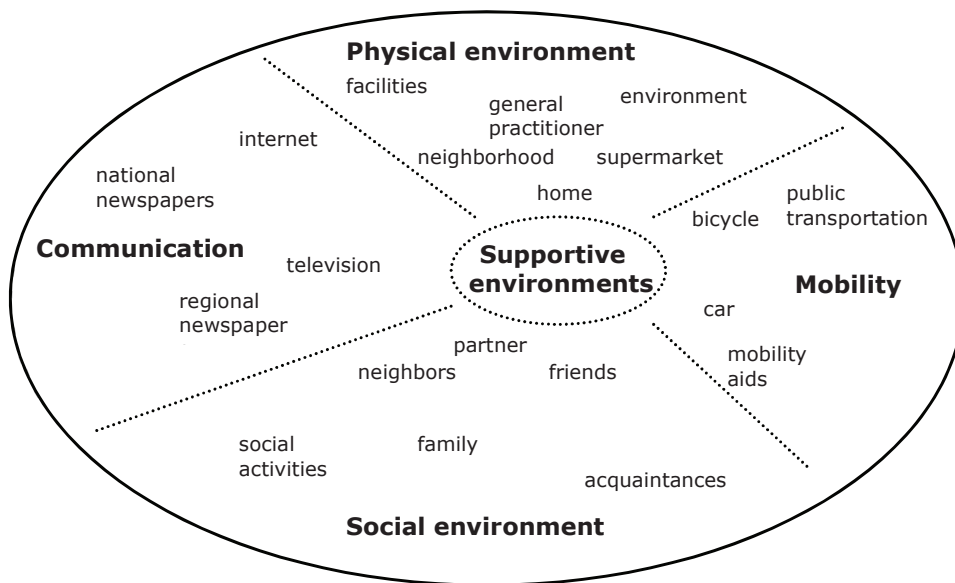
These results show how healthy aging is perceived within the context of everyday life, and interviewees who are content with their health often have an assets-based and positive view on health.

### Resources perceived to contribute to supportive environments

Interviewees mention a wide variety of resources that they perceive as contributing to a supportive environment. As a supportive environment is perceived differently by every individual, not all interviewees emphasize each resource equally importantly. Analysis of the data resulted in four main categories of mentioned resources. The first two categories relate to available resources in the social and physical environment. The other two categories relate to the way in which these resources become available through communication and mobility. Figure 4.1 gives an overview of these four dimensions in resources and presents examples of resources mentioned as relating to each dimension.

Familiarity and proximity are perceived as important assets for resources. For instance, individuals' own home and neighborhood are almost always mentioned as important. However, this does not mean that interviewees are reluctant to move elsewhere when necessary, that is, if the environment becomes less supportive. The maintenance of a large home can become a burden when physical challenges arise. Houses can become too large for comfort when one is living alone; a smaller place might offer more security as the following interviewee says:

*I am not that brave. I get nervous with the idea of living alone in this place, it is just too large. If I should end up alone, I hope I can find a small rental apartment to live in.*



**Figure 4.1** Dimensions in resources for supportive environments.

Resources mentioned in the social environment include, for example, neighbors. Sometimes neighbors are even close friends, but in many cases they have a unique and specific contribution to the perception of supportive environments. Contact with neighbors is often limited, and many interviewees stress the fact that good contact with neighbors does not have to result in a negative experience of social control:

*We always greet each other and we have contact on a regular basis, we watch out for each other. But it is not like... We do not drink coffee together every day, that's not necessary.*

However, when help is needed for small chores, neighbors can easily be approached. In that case, interviewees do not have to rely on family or friends, who often live further away. In the following quote, the interviewee describes her contact with her neighbors as limited but very much appreciated:

*I don't have that much contact with the younger neighbors around here. Oh yes, when my tap is jammed or when I need to move heavy boxes I can always call on them, that's not a problem at all.*

Consequently, neighbors are important for the maintenance of independence, and calling upon them for help is a way to take personal responsibility for small challenges.

The main assets of nearby resources, in both the physical and social environment, are easy access and familiarity. This also emerges when interviewees discuss the selected newspaper clippings. Participating in activities within the neighborhood increases the chance of meeting familiar faces and strengthens a homely feeling. For instance, many little stores in smaller villages are disappearing and large shopping malls outside town are replacing them. These large stores offer little chance of meeting someone you know:

*We have a little grocery store in this village and I know the owners well. But I am afraid that the owner will close the store when he turns 65.*

To be able to use available resources, one needs to know where to find them and how to reach them. Many sources such as written material, newspapers, and information guides are mentioned. The internet is a well-used medium. Even the oldest group of interviewees (around 90 years of age) makes use of the Internet. The following interviewee first describes the little interest she has in computers and the Internet. However, she appears to be using the Internet after all:

*I use the internet for banking, but I have little interest in it otherwise. Oh yes, my friends are travelling to Australia next summer and they have set up a website on which they post regularly. I can use the internet café downstairs to look at it.*

Experiences of others, such as family or friends, are also used as a source of information about activities. This kind of information often results in an invitation to come and see for themselves and join in. Sometimes being invited by a familiar face removes a barrier that paper-only information never can reach, as this interviewee explains:

*I joined a line-dancing group quite some time ago. My neighbor asked me along one evening and I liked it very much. I do not think I would have taken that initiative by myself though. Somehow going alone is a kind of barrier I think.*

Accessibility of resources is linked to mobility issues. Owning a car and having a drivers' license can be very important because they significantly increase one's radius of action. Distances become less of a constraint when one is able to drive, lives in a larger city or has access to adequate public transport. The following excerpt shows how distance and having to travel to another village can become a constraint to participating in a course that could enhance mobility resources (car driving skills), even if one owns a car:

*Refreshing driving skills? To be honest, I would not go there because I have to travel to another village. If it were in my own neighborhood, maybe I would consider joining such a course. It can be very useful after all.*

This excerpt shows the interrelatedness between the resource (course) and mobility. Because of these kinds of interactions, changes in resources influence one another. For example, physical challenges may influence mobility, and this has an effect on the social environment because it becomes difficult to visit friends who live far away. The next excerpt provides another example, as an interviewee talks about changes after her husband died:

*I used to go shopping with my husband every Saturday. He drove a car and we could go wherever we wanted. Now, my daughter-in-law brings me my groceries. It's a shame, but that's life I guess...*

The resources mentioned cover many examples in the social and physical environment. However, access to resources is influenced by changes such as decreasing mobility and a smaller radius of action. This makes resources in the immediate vicinity more important. Familiarity was found to be another main asset of nearby resources.

### **Influences on the perceived capacity to use resources**

Having resources available can only contribute to supportive environments when one knows how to put them to good use. Interviewees' experiences with this issue can be divided into two main categories. One constitutes positive experiences in which interviewees feel in control and know how to use their environment in a supportive way. The other envisages

a more negative scenario in which experiences reflect situations involving little control. Figure 4.2 visualizes these positive and negative factors.

Positive experiences are associated with control. This is expressed by statements such as: “*knowing what to do*”, “*feeling independent*”, and “*feeling engaged*”. Knowing one’s abilities, a positive mindset, and adapting to situations are mentioned as prerequisites to perceiving control. Interviewees perceive taking the initiative and arranging support and facilities by themselves as essential to stay in control:

*You should know your boundaries. Don’t force things. Realize that you know yourself best and ask for help if needed.*

*We would like to move to the center of town. Preferably before it is necessary for physical reasons. In this way we can arrange things ourselves.*

*Older people should not be pampered too much. If you know your own abilities then use them as much as possible. Use it or lose it.*

Using strategies in a successful way makes interviewees feel more confident about their situation. Arrangements made to safeguard independence are discussed in the following excerpt:

*We really love this house. It is a serviced home, you know. I can do all chores myself, but if I need some help I can “buy in”, that is how they call it: buying in, from the institute. Nurses come to help if you want, and you can do the rest yourself.*

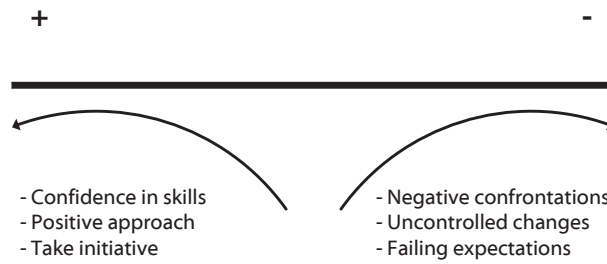
Other individuals moving to serviced apartments may experience this in a negative way, as giving in on independence. However, the above interviewee manages to increase her feeling of control by being involved in making arrangements for herself and her husband.

Negative influences are often connected with the feeling of having little control over the situation. Interviewees voice this as feeling dependent on others and sometimes even patronized.

*I used to go on the annual bus trip, this year they are even going to Germany. Now with my arm I need help, and I am not sure whether I can still go.*

Situations that confront respondents with negative aspects of aging can foster feelings of dependence and lack of control. Examples of such situations are personal physical challenges and diseases but also confrontation with diseases in the social environment and the death of family and friends:

*Some things are hard to understand. We always think we can do anything we like. A neighbor, only 55 years of age, died of cancer last week. That makes you wonder...*



**Figure 4.2** Influences on perceived ability to use resources.

Changes in the social environment, such as familiar neighbors moving or dying, evoke unpleasant feelings because routines and strategies are influenced by these changes. New neighbors are often young families who belong to another generation; this makes the nature of the contact different. This interviewee talks about the changes in her neighborhood and how this makes her feel:

*There are a lot of young couples in the neighborhood. We decorate their homes with green branches and with roses when they get married. I always like doing that together with the neighborhood. The wedding parties I like less. I feel lonely on my own between all those happy couples.*

Changes in facilities and the physical environment play an important role as well. For instance, interviewees are often used to the family doctor coming to their home and knowing the family. The trend towards larger cooperative GP practices with different doctors means a new face every time. Such centralization of services is experienced as fostering dependence. When a pharmacy is within walking distance, one does not have to depend on someone else to pick up one's medication, as this interviewee explains:

*I would like to pick up my own medication but the pharmacy moved to a larger town. My son gets me my medication now.*

Another way interviewees experience a lack of control is when their expectations fail to materialize. The bureaucracy involved in applications for help or municipal services is often mentioned in this regard. There is an expectation that help will be provided when needed, but, when the time comes, applications are very difficult, and this causes a lot of uncertainty. Sometimes extreme patience is needed:

*I needed a mobility scooter so I contacted the service point to fill out an application. First, someone had to visit me in my house and see if I really needed it. Then it was going to take a long time before I would finally hear if I could get a scooter. In the end, I bought one myself.*



Expectations concerning the social environment are not always realistic or fulfilled. Children visiting every day or expecting others to initiate contact are examples of this. Sometimes interviewees have difficulties with formulating their wishes and expectations. This makes it even harder for others to respond in the expected way:

*I would like to see my children and grandchildren more often. I pay them visits but that's always somewhat formal. I would like to just drop by for an hour or so and have a cup of tea, or help out with some chores, or play with the grandchildren. I never voice this though. Now I come to think of it, maybe I should. But they are very busy, both have jobs and I find it hard to ask.*

Thus, feeling that one is in control is important to one's perception about one's ability to use available resources in a health promoting way. Positive and negative experiences influence the extent to which interviewees feel in control.

### Perceptions of existing facilities

Facilities to support aging populations range from organized activities to health promoting interventions and general support to manage (physical) restrictions and challenges. Interviewees recognized facilities presented in the newspaper clippings as important contributors to healthy aging. No specific facilities were identified as lacking in their municipality, and supportive facilities are available in the environments visualized in figure 4.1. However, this does not mean that these facilities (which aim to provide activities and support aging populations) are always used by the intended target group.

A mismatch between the presentation of facilities and the interviewees' perception was found to influence intentions to use resources. Table 4.3 illustrates the way resources are presented to target groups, their content, and the way interviewees perceive them. This table explicitly presents cases of miscommunication; of course, facilities are perceived in the intended way as well. However, in a substantial group of interviewees this flaw in communication occurs either because the information presented does not appeal to them or because the information itself is misinterpreted. In the translation from Dutch to English, it is difficult to capture alliterations and word creativity used in many cases.

Table 4.3 illustrates how these activities stress risk factors such as falling incidents and evoke negative feelings. As a result, interviewees recognize the importance of facilities and provisions but do not want to relate to them in terms of usability by themselves. Offered services often build on specific health themes identified in health surveys and included in policy documents. This theme-based approach isolates the service from the broader context of everyday life that is important for how interviewees perceive healthy aging. Finally, the focus on age groups can hinder a positive judgment of facilities.

**Table 4.3** Presentation and perception of facilities

Facility presented as	Content	Occurring tensions in perceptions
Prevention of falling incidents: "Are you balanced?" "Beware! You might fall!"	Course content: inventarization of risk factors in and around the house, medicine use, and correct use of walking aids.	Perceived as something for younger people because one needs to go to a gym and learn how to fall in a safe way. Perceived as something for older people because of one's own ability to judge risky situations or because of physical fitness which prevents falling.
Activation interventions: "Center for vitality" "Senior consultation bureau"	Service content: Physical health check-ups, lifestyle, and overweight. Social network and loneliness. Information on available facilities.	No need for advice and new activities because of active lifestyle. Relevant to others, who are lonely and at home all day long.
Refresh driving and traffic skills (voluntary): "Driving test for 50+ age" "Refresh your drivers' license" "Driving skill lessons"	Course content: lecture on traffic rules, situations and signs. Driving one's own car accompanied by an instructor who provides tips and comments. Sometimes an eye or sight check by a local optician.	Afraid to be judged by a stranger, afraid to make too many mistakes and lose drivers' license. If you don't know how to drive by now, you never did.
Social contact, conversation groups: "Conversation group"	A social afternoon to meet new people and talk about selected themes.	A group of people nagging all the time and complaining about several subjects. Everyone needs to give a presentation and I'm not comfortable to do so.
Activities aimed at seniors: Different kinds of activities followed by an age indication: "... for seniors" "... 50+" "... 65+" "... for the elderly"	Activities adapted to aging persons like: yoga, art class, music, choirs, fitness, cooking classes, gym, square-dance, folkdance, billiards, games, brain training, internet, computer skills.	Why not participate in courses aimed at the general public?

Interviewees mention that it can be hard to assess what it would be like to participate in a particular activity. This creates confusion and a reserved attitude towards the activity. For instance, the way courses to prevent falling incidents are perceived is very different from their actual content:

*A course about falling, no I am too old for that. Why? Well I guess you have to go to the gym and learn how to fall down in a safe way and get up again, a bit like judo.*

Interviewees mention the need for more information about the exact nature of activities to be able to judge whether they would like to participate. In reaction to the newspaper

clippings, this interviewee shares her thoughts about a day trip she read about in an information guide:

*I would like to know what such a day trip would be like. Otherwise I am afraid I would be stuck on a bus with complaining elderly people. Maybe they could make an infomercial, like the ones on television.*

With regard to supportive environments, facilities cover essential resources and are perceived as very useful. However, the use of resources could be hindered by the mismatch between interviewees' view of healthy aging and factors that influence usability of resources. The focus on risk factors, isolated health themes, and age are main issues here.

## DISCUSSION

### Research questions

The results of this study show how healthy aging is experienced within the context of everyday life. How this influences the perception and use of resources is elaborated on in the following sections in which the research questions are answered, and the difference between deficit and assets based approaches is discussed. This is followed by some remarks on the interview process.

### Supportive environments

Many resources are perceived as contributing to a supportive environment that makes healthy aging possible. As interviewees all have their own preferences, the way resources are used differs per person. Familiarity and proximity are important assets for resources. Supportive environments create conditions that enable people to make health promoting choices (Nutbeam, 1998). This study indicates several assets of nearby resources that make them important to a supportive environment. Nearby resources are easily accessible and can often be used with little help from others, increasing a feeling of control. Furthermore, the familiarity of nearby resources removes barriers to their use.

### Perceived capacity to use resources

In order to perceive that they have the ability to use available resources in a health promoting way, older people must feel that they are in control. Positive and negative experiences influence the extent to which interviewees feel in control. Sudden changes, unrealistic expectations, and negative confrontations with consequences of aging

have a negative effect on perceived control. Control is an important concept in health promotion and relates strongly to empowerment (Freire, 1995; Koelen & Lindström, 2005). Empowerment enables people to gain greater control over their decisions and actions (Nutbeam, 1998).

### **Match between existing facilities and perceptions**

Facilities offered cover essential resources and are perceived as very useful, but the mismatch between interviewees' perceptions of healthy aging and factors that detract from the usability of resources has the potential to hinder the use of resources. Main issues here include the focus on risk factors, isolated health themes, and age.

### **Deficit approach versus assets approach**

The key findings of this study can be viewed within a salutogenic perspective. The contextual, positive, and every day-life perception of aging and healthy aging relates to salutogenesis and 'Sense of Coherence' (SOC) and shows how interviewees construct an assets-based approach to healthy aging. Perceptions about the ability to use resources and the mismatch between existing activities and target group perceptions also relate SOC and are reflected in interviewees' perceptions of activities and the information they see as necessary to help them decide whether or not to participate.

Health themes and risk factors identified in epidemiological and biomedical studies are often the main driving force behind policy documents and the development of health promotion and healthy aging programs. This results in a deficit-based approach (Eriksson, 2007a). Priorities and goals defined in this way take little account of the perceptions of stakeholders. Powell (2009a) critically addresses the way biomedical systems of knowledge (and their use in health and welfare professions) impact and shape the way care for older people is constructed, monitored, and managed. As a consequence, older people have a decreasing voice in health and care issues (Powell, 2009a, 2009b).

The effects of a focus on negative aspects of aging are also addressed in literature concerning ageism (Angus & Reeve, 2006). The results of this study, which views healthy aging from a positive perspective, highlight the shortcomings of deficit approaches. An assets-based and resource oriented approach to health promotion can be helpful to get a richer picture on healthy aging (Eriksson, 2007a; Eriksson & Lindström, 2008; Reed et al., 2008; Wiesmann & Hannich, 2008). Salutogenesis can offer a promising starting point to further integrate assets-based approaches into healthy aging strategies.

## Process and appreciative inquiry

Adopting an appreciative approach to interviewing prevented conversations from becoming problem oriented. Interviewees were not forced into a position in which they had to elaborate on (personal) problems. This focus on the sharing of positive experiences and successful strategies contributed to the quality of the dialogue. The positive approach, however, did not prevent negative stories and experiences from emerging in conversations. Other studies using appreciative inquiry have had this same experience and even stress the new view on difficulties and negative situations provided by an appreciative focus (Michael, 2005).

The ongoing feedback and crosschecks within the AGORA project provided opportunities for follow-up actions within the participating municipalities. Target-group participants recognized the presented results but stressed the fact that older people in need of help might not be likely to participate in either the study or the discussion and might have experiences that differed from theirs. This concern was shared by health promotion professionals. The group that refused to participate in this study possibly resembles the groups classified in discussions as being hard to reach; therefore, this study may not reflect their perceptions. However, the results may apply to and be useful for this group as well because they share the same kind of environment and encounter similar challenges.

Why some groups seem to be able to cope well in the same context in which other groups have difficulties and become more fragile is a question that can be addressed with the concept SOC (Cairano, Rabaglietti, Martini, & Giletta, 2008). Whether individuals with a high SOC are better able to make use of available resources than those with a low SOC, and whether experiences of a high SOC group may provide information to mediate for a lower SOC group, are questions that arise from this study. They need to be addressed in further research.

## CONCLUSION

There is a discrepancy between the way interviewees experience healthy aging as an integral part of everyday life and the way services and interventions are presented with a focus on isolated health themes. In some cases, this may evoke a feeling of having little control, powerlessness, and negative confrontations with aging. Thus, interventions that aim to support the aging population to age healthily may even undermine healthy aging in the target groups' point of view. Strategies aimed at healthy aging should take into account the broader context of aging in the design, implementation, and evaluation of new initiatives.

Especially the delivery of services and communication about initiatives could be improved if they were adjusted more to this context. Because the experience of health – or lack of it – is largely influenced by the experience of control or lack thereof, the development

and communication of new services should take this into account. Participation of the target group is essential in this. Healthy aging strategies, interventions, facilities, and services could benefit largely from positive and contextual framing when communicating with the target group. Using a salutogenic perspective can be helpful here because it promotes a positive and integral approach to health promoting activities. This prevents new initiatives isolating health themes from the broader context and a focus on negative aspects of aging.

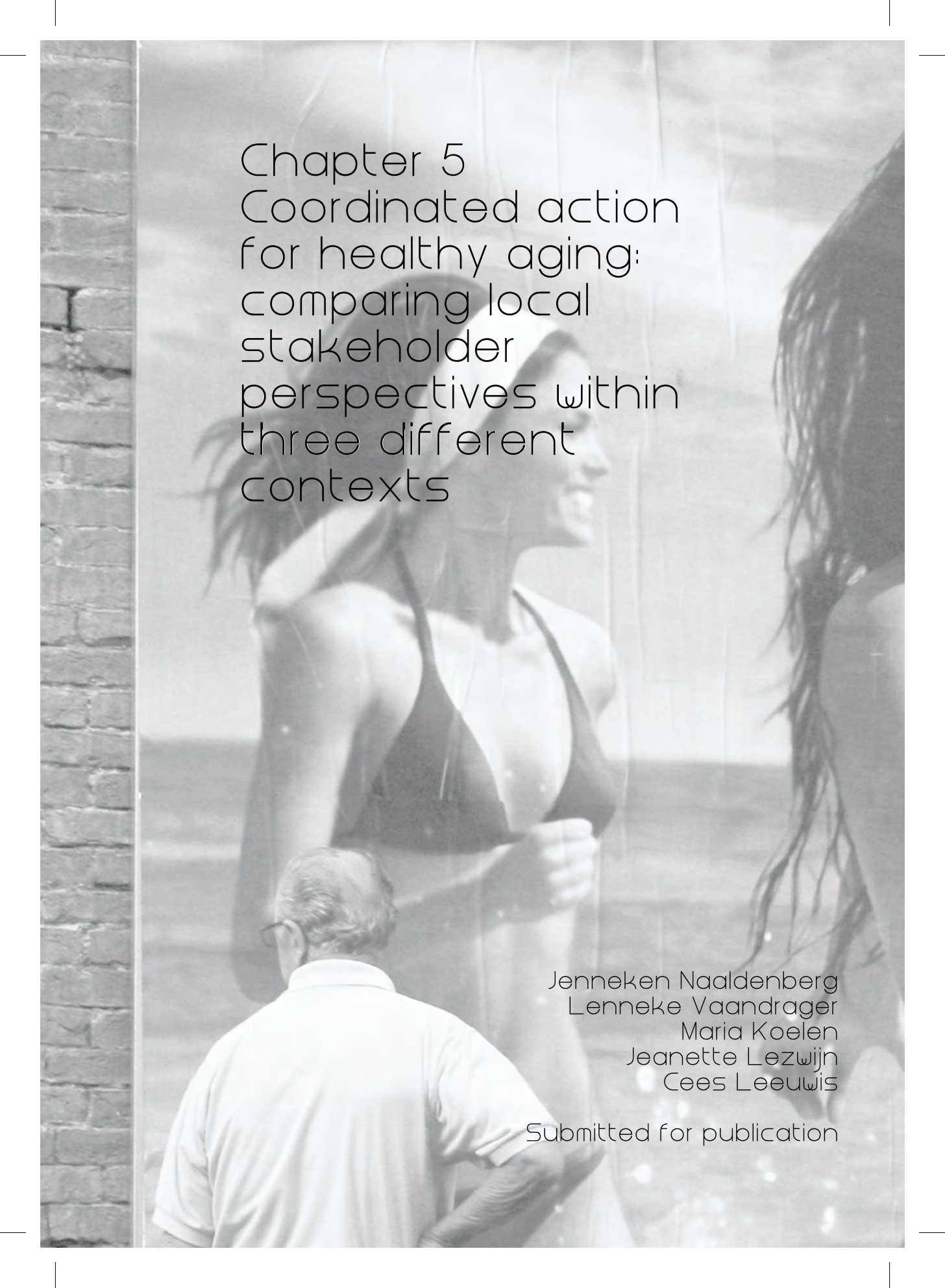
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Chapter 5  
Coordinated action  
for healthy aging:  
comparing local  
stakeholder  
perspectives within  
three different  
contexts

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## **ABSTRACT**

This paper investigates the influence of local context on the extent to which local stakeholders perceive their ability to coordinate their activities. Interviews with 44 stakeholders, from three different municipalities, provided the empirical data for a qualitative analysis. Findings reveal how stakeholders share visions on objectives that moved from *what* issues to address (i.e. health themes) towards *how* to do so (i.e. how to reach hard-to-reach groups). However, current financing structures and policy strategies, although valuing collaboration, induce competition and isolated approaches. Familiarity between organizations and visibility of intermediate results are perceived as essential to facilitate collaboration. Even though municipalities are all situated in the same region and are quite similar concerning their ageing populations, this study highlights relevant differences concerning context, dynamics, and prerequisites for coordinated action. This indicates that it would be inadvisable to implement the same programs in the same way for each municipality.

## BACKGROUND

The rapid increase in population aging raises questions and challenges for policymakers at international, national, and local level on how to improve and guide healthy aging strategies (Alongi, 2009; Räftegård Färggren & Wilson, 2009; World Health Organisation, 2002). In the Netherlands, recent changes in public health policy, influence local policymaking. In Dutch municipal government, the highest authority is formed by the elected municipal council. This council decides on broad policies, oversees their implementation, and appoints aldermen. The day to day administration is in hands of the mayor and these aldermen. Municipalities traditionally have a task to control, promote and protect the health of inhabitants. With the introduction of the social support act (WMO), the national government delegates responsibilities to municipalities at the local level. These responsibilities include to provide support and facilities to aging and disabled inhabitants, with a special focus on livability, participation and mobility (Ministry of Health, 2004; Tjalma-van den Oudsten, Bleijenberg, Kaspers, & Boom, 2006).

A variety of stakeholders, such as community health services, housing, welfare, and care organizations, are involved in healthy aging at the local level, but often are not used to work together. However, since most public health issues are multi factorial they need to be approached from different angles at the same time. Therefore, there is an increased call to join forces (Koelen & van den Ban, 2004; Mays, 2002; Williams, Costich, Hacker, & Davis, 2010; Green, Daniel, & Novick, 2001; Mantoura, Gendreon, & Potvin, 2007). In public health and health promotion practice this is also referred to as intersectoral collaboration or coordinated action.

This study investigates the views and experiences of local stakeholders concerning healthy aging strategies within three different municipalities in the Netherlands. In this way, this study aims to gain insight in challenges and preconditions for coordinated action related to healthy aging at the municipal level. This study takes place within the context of an Academic Collaborative. In this consortium a university and a Community Health Service work together in order to identify innovative approaches to healthy aging. The three municipalities participating in this study closely collaborate with this consortium.

Coordinated action can be defined as a recognized relationship between (parts of) different sectors of society which has been formed to take action on an issue to achieve health outcomes in a way which is more effective, efficient, and sustainable than might be achieved by a single sector alone (Nutbeam, 1998). Coordinated action creates opportunities for sharing information, activities, skills, and resources. It includes getting involved in new areas, with new people and with various backgrounds, knowledge domains, interests, and perspectives.

Theoretically, health promotion practice should be able to benefit from this diversity. By capturing the knowledge and experiences of diverse stakeholders, a richer understanding

of health promotion issues can be obtained, leading to more robust and sustainable health promotion programs (de Savigny & Adam, 2009). The principle of synergy seems to be strong. Evaluations of community health programs clearly show the added value of coordinated action (Clark, Baker, Chawla, & Maru, 1993; Goldman & Schmalz, 2008; Graham & Bois, 1997; Green et al., 2001; Wagemakers, 2010; Woolf, Dekker, Byrne, & Miller, 2011). However, in practice the differences are often the reason why collaboration proves challenging (Koelen, Vaandrager, & Wagemakers, 2008; Koelen & van den Ban, 2004; Fawcett, Schultz, Watson-Thompson, Fox, & Bremby, 2010; Graham & Bois, 1997; Green et al., 2001; Roussos & Fawcett, 2000).

**Table 5.1** Coordinated action: factors, values, challenges

Factor	Value	Challenge
Discussing aims and objectives	Stakeholders have to agree on the problem definition and objectives of the program or activities in question. Perspectives and definitions of concepts need to be clarified.	The initial assumption that agreement exists is a main challenge since further discussion often reveals this is not the case. Explicit expectations on outcomes often remain unspoken and can lead to friction when they come to the fore at a later stage in the process.
Representation of relevant stakeholders including clients	Since one sector alone has a limited perspective and a limited reach across the population, a variety of sectors needs to be represented.	Different backgrounds of stakeholders and little history with working together are main challenges. Clients and end users are often under-represented.
Discussing roles and responsibilities	A variety of skills, expertise, and experience is needed to strengthen collaborative efforts.	Finding clear definitions of roles and responsibilities is difficult. Stakeholders have to find a balance between collaborating and getting the freedom to fulfill their part of the job in their own way.
Communication infrastructures	The sharing of information, ideas, and experiences needs to be facilitated, for instance through meetings.	Stakeholders differ in their capacity to access information and in their communication skills. Attending meetings can be (perceived as) time consuming.
Visibility of contributions and results	Visibility functions as an incentive for involvement, action, and continuation. It refers to visible activities (for instance in local media), visible outcomes and the visibility of individual contributions. Visibility is necessary to get political and financial support.	Unrealistic outcome expectations discourage the sustainability of collaborative efforts. Invisibility of individual contributions can demotivate participants from continuing to contribute.
Management	The collaboration process needs to be nurtured, a specific role such as a coordinator is needed to facilitate and manage this process.	Often “how to get things done” is more difficult than “what to do”; this means that the focus is on achieving goals instead of on nurturing the collaboration.

Source: after Koelen et al., 2008.

Next to this, health promotion takes place in increasingly complex environments where many factors can influence success. Strategies to improve health are context sensitive, and consequently, certain strategies may not work in some settings whereas they function perfectly well in others (de Savigny & Adam, 2009). Few studies take these challenges into account (Koelen, Vaandrager, & Colomer, 2001). Collaborative actions are hard to achieve and difficult to sustain. Differences between stakeholders play an important role in this but are hardly the sole challenge. Many factors relating to the context of collaborative efforts can also hinder or facilitate effective collaboration. Existing structures, rules, routines, and institutions – such as laws and financing structures – are examples of this (Klein Woolthuis, Lankhuizen, & Gilsing, 2005; Leeuwis & van den Ban, 2004; Mays, 2002).

On the basis of lessons learned from a variety of health promotion programs and a review of relevant literature in this area, Koelen et al. (2008) have identified six factors that are relevant to achieving and sustaining coordinated action in collaborative projects. These are: 1) discussing aims and objectives, 2) representation of relevant stakeholders, 3) discussing roles and responsibilities, 4) communication infrastructures, 5) visibility of contributions and results, and 6) management. Each factor represents an essential value or prerequisite to coordinated action. Factors one to three are important to achieve coordinated action, whereas factors four to six are important to sustain collaboration once it has been achieved. The six factors, their value to coordinated action, and related challenges are elaborated on in table 5.1. Overall, these factors demonstrate that differences between stakeholders in routines, perceptions, and objectives, as well as contextual factors are of importance to coordinated action.

In order to facilitate sustainable and relevant healthy aging strategies in the participating municipalities, local stakeholders can provide valuable knowledge and experiences. This study will therefore focus on stakeholder views and experiences concerning local healthy aging strategies. The factors for coordinated action (as presented in table 5.1), though constructed to guide or evaluate existing projects, provide a broad background to gain insight into each municipal context. This study was guided by the following questions:

1. What do stakeholders perceive as important to the success of healthy aging strategies?
2. What aspects of coordinated action do stakeholders perceive in current strategies and activities within their municipality?
3. Do the three municipal contexts differ in terms of pre-conditions for coordinated action?

## METHODS

The three participating municipalities all belong to the operational region of the involved Community Health Service. Around the year 2005, national spatial reorganizations of the Dutch municipal infrastructure resulted in several merges. Table 5.2 provides general background information about each municipality and the main consequences of the spatial reorganizations. Names are replaced with letters because of anonymity reasons.

In each municipality, an initial meeting with the alderman concerned with aging population policy took place. These aldermen provided information about organizations involved in local aging population initiatives. Afterwards, the aldermen informed local organizations about this study in a letter. Information received by the aldermen, local information guides and social maps were used to gain an overview of the local setting and involved stakeholders. From this overview, a selection of stakeholders was made with the aim to include all types of stakeholders.

Potential participants were contacted by telephone in order to provide additional information about this study and to establish an interview appointment. Interviewees

**Table 5.2** General background information on participating municipalities

	Municipality A rural characteristics	Municipality B between rural and urban	Municipality C urban characteristics
General population	45,226	32,655	46,643
Population density	175 p/km <sup>2</sup>	212 p/km <sup>2</sup>	1,127 p/km <sup>2</sup>
Population aged 65 years and older	7,113 (16%)	5,878 (18%)	6,299 (14%)
Consequences of spatial reorganizations	Merge of four smaller municipalities. Election of new council and appointment of new aldermen. No clear vision on aging population policies due to these reforms.	Consists of four smaller villages but was not influenced by the 2005 reforms.	One smaller village was added to the central city in this municipality which already fulfilled a central role to this village.
Characterization of healthy aging in 2005	No clear policy, each merged municipality had own organizations and facilities which need to re-organize themselves within the new structure.	No local infrastructure of organizations involved in public health or healthy aging issues. Aging population policy was outdated.	Clear view on aging population policy and extensive local infrastructure of involved organizations.

were very interested in this study, only in municipality C we did not manage to organize an appointment with a general practitioner and in municipality A, housing was not represented. A total of 44 interviewees participated in this study, summarized in table 5.3. The focus of this study was on the municipal context of healthy aging strategies. The number of 14 to 15 participating organizations per municipality provided enough information gain an overview of this context. Interviews were held by the fourth and first author of this paper over the summer of 2007. Conversations lasted between 60 and 90 minutes and were audio-taped with permission of the interviewees.

The focus on perceptions and experiences in the research questions required methods that were sensitive to these personal experiences. However, the need to compare between municipal settings asked for some structuration as well. Semi-structured, face to face interviews were therefore used in this study. Interview questions addressed two main topics derived from the research questions:

1) *Perceptions and experiences concerning healthy aging strategies*, were addressed by the six main health issues as identified in the 2005 senior inhabitant survey by the

**Table 5.3** Participating organizations

Participating organizations and short information	Municipality A	Municipality B	Municipality C
<b>Psychological healthcare</b> Preventive activities concerning loneliness, depression, loss of partner. Often a more regional function providing for several municipalities	1	2	1
<b>General practitioners</b> Physical health care, home doctors	1	1	-
<b>Home care and care organizations</b> Provide care in clients own homes and often also provide sheltered facilities and institutionalized care. Sometimes with a regional function	2	3	2
<b>Volunteer organizations</b> Provide help with small chores around the house, organize courses and many other activities and support	2	1	1
<b>Wellbeing organizations</b> Organize courses, leisure activities and services to support people remain their independence, sometimes with a focus on aging	4	2	3
<b>Housing</b> Noncommercial rental of houses	-	2	3
<b>Municipal policy makers</b> From different sectors like public health, aging, and spatial planning	5	4	4

Community Health Services being: loneliness, mobility challenges, care-giving burden, overweight, psychological issues, and falling incidents (Timmerman-Kok, 2006). Since this survey provides important input for the development of policies at the municipal level, these themes are relevant to this study. Between participating municipalities, these priorities did not differ. Interviewees were asked to elaborate on the importance of the themes to aging populations from their organizations point of view. Next to this, interviewees were asked about their personal definition of what it means to age healthily.

2) *Coordinated action and current context*, were discussed by presenting interviewees with several newspaper clippings concerning activities within their municipality.<sup>1</sup> The clippings were selected to cover a broad selection of facilities within the concerned municipality such as health, general support, social and leisure-related activities. Clippings differed per municipality but were selected to cover the same subjects. Examples include: courses to refresh driving skills, local information guides, leisure activities, activities to prevent falling incidents, administrative help, activities to prevent loneliness, and home information projects. Both the clippings and theme cards were used as props to start the conversation and stimulate and guide the interviews.

Interviewees were asked to talk about their ideas about and experiences with working with representatives from other organizations within the municipality. To stimulate interviewees to elaborate on their experiences without having to avoid delicate subjects and resolve to being discrete, we integrated aspects of the organizational change methodology Appreciative Inquiry (Cooperrider, 2005) in our approach. Appreciative Inquiry has successfully been used in health promotion approaches (Melander-Wikman, Jansson, & Ghaye, 2006; Reed, Richardson, Marais, & Moyle, 2008; Wagemakers, 2010) and as an interview tool before (Michael, 2005). In practice this meant interviewees were not asked to list main problems within their municipality, but instead were asked to think about successful activities, the causes for these successes and desirable situations in the future.

All interviews transcribed (intelligent verbatim style), notes taken during the conversations were added, after which the final document was anonymized. The qualitative analysis software ATLAS ti 5.0 (Scientific Software Development) was used to manage the data and ensure transparency during the analytical process. When necessary, audio files were used to confirm transcripts and listen to excerpts within their original conversational context. The coding process used a combination of top-down and bottom-up approaches (see table 5.4) based on a combination of content analysis (Silverman, 2006) and domain analysis (Coffey & Atkinson, 1996).

The first stage of coding assigned fragments of text to pre-defined codes derived from the research questions, resulting in three groups of fragments with the labels: 1) perceptions on healthy aging, 2) positive- and 3) negative experiences with coordinated

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<sup>1</sup> An overview of these clippings is provided in Appendix II.



**Table 5.4** Consequent phases in coding and categorizing data

Phase	1	2	3	4
Action	Assigning fragments of transcripts to groups 1) perceptions, 2) positive experiences 3) negative experiences	Clustering within groups by combining similar fragments and assigning codes (reduction)	Linking themes to conceptual categories derived from factors for coordinated action	Comparing factors over the three municipalities
Approach	Top-down	Bottom-up	Top-down	Comparative

action. Next, within each group, similar fragments were clustered, coded by means of free coding, and organized into conceptual categories derived from the factors for coordinated action. Perceptions on healthy aging were found to relate mainly to factor 1 whereas found positive and negative experiences could be related to the other five factors. Finally, to answer research question 3, the factors were compared over the three cases. Results are presented following the factors for coordinated action. Quotes provided were selected to be representative for interviewees' reactions and experiences in relation to that specific factor.

During the analysis, intermediate results were discussed between co-authors several times in order to cross check interpretations. Next to this, results were presented in a workshop format per municipality. The interviewees and other interested organizations were invited to participate. This offered opportunities for participant checks with interviewees and provided a way to crosscheck findings with others participating in the discussions. The outcomes of these workshops did not give cause to major changes in our findings.

## STUDY FINDINGS

During the analysis, it became clear that interviewees share a lot of perceptions concerning healthy aging and what they would like to do to improve healthy aging strategies. From their personal point of view, interviewees perceived independence, involvement, and empowerment as important values to healthy aging. Interviewees shared an integral perspective on health and healthy aging. However, the extent to which interviewees perceived they were able to act accordingly, was largely influenced by contextual factors and dynamics such as financing structures and working routines. Interviewees mentioned that projects that were on too large a scale and too ambitious were hard to adjust to the local practice and the needs of clients. This made those initiatives difficult to implement. Small-scale and adaptable programs were preferred over standard interventions.

Furthermore, concerns were voiced about whether facilities were visible enough to the targeted audience. Reaching so called *hard to reach groups* was explicitly formulated as an aim, but how to do so remained difficult. Differences between municipalities related

mainly to factors such as familiarity between organizations and changes due to municipal reforms. Similarities and differences per factor will be elaborated on below and are summarized in table 5.5.

### **Aims and objectives**

Interviewees work within different organizations, that have different aims and address different health issues. However, interviewees do share a common view on objectives that moved from *what* issues to address (health themes) towards *how* to do so. The first shared vision came forth while discussing the presented health themes. When asked to order these themes on importance to aging individuals, interviewees made solutions in which themes were allowed to overlap, influence, and relate to each other. None of the themes was more important than the other:

*Overweight is commonly seen when someone experiences mobility problems. That also induces loneliness, people don't get out much anymore.*

Another shared vision is related to ways in which organizations address their audience. Interviewees question the extent to which they should act pro-active and decide for their clients on what is best, since this hampers autonomy and involvement:

*Often we create solutions before someone even experiences a problem. We should pay more attention to what people can do themselves instead of immediately providing standard solutions.*

Organizations shared the concern about whether they were reaching the right groups. Familiar faces often attend organized activities and special provisions for frail individuals fail to actually reach those groups, as addressed in the following fragment:

*Those who provide informal care to a relative may suffer from the burden of giving care, they are one of our target groups. We've organized a 'care giving support desk' but we only received two clients in the past nine months. It makes you wonder, what are we doing wrong? What should we do to reach them?*

A last shared vision concerned the scale of new initiatives. Too large a scale means less attention to local conditions which interviewees experience as a burden in their day to day work:

*Well, I have noticed the best effects originate in small initiatives. There are so many rules and guidelines that don't provide any support. They don't fit the daily routines.*

**Table 5.5** Overview of similarities and differences in compared municipalities

Factor	Similarities	Differences
Discussing aims and objectives	<p>Interrelatedness of health issues.</p> <p>Autonomy and involvement are important.</p> <p>Small size and scale of initiatives is preferred.</p> <p>Involving hard-to-reach groups needs attention.</p>	<p>Municipality C organizes network meetings at which relevant topics can be discussed; this results in a better understanding of differences between stakeholders' perspectives and interests.</p>
Representation of relevant stakeholders including clients	<p>Need for an integrated approach and coordinated action is supported.</p> <p>Representation of target groups is important.</p> <p>Social environment is also a relevant 'stakeholder'.</p>	<p>Municipality A and municipality B would like more participation by target groups and more demand driven approaches.</p> <p>Municipality C uses person-to-person contact to involve target groups as well.</p>
Discussing roles and responsibilities	<p>Role definition is influenced by targeted groups, services provided, and goals.</p> <p>Theme-based aims and objectives hamper collaboration.</p> <p>Financing structures influence relationships and induce competition.</p>	<p>Because of extensive reforms in municipality A, organizations need to familiarize themselves with each other.</p> <p>Informal network meetings in municipality C contribute to familiarity between organizations. In municipality B, organizations feel uncomfortable with each other.</p>
Communication infrastructures	<p>Synchronizing efforts often is effective.</p> <p>Familiarity between organizations is needed.</p> <p>Personal contact between employees of different organizations is essential.</p>	<p>Municipality C uses its current opportunities for communication in a successful way.</p> <p>Municipality A would like to have an infrastructure but this needs to be consolidated. Stakeholders share ideas and visions to do so. Municipality B lacks an infrastructure, and stakeholders have different ideas and interests concerning communication.</p>
Visibility of contributions and results	<p>Difficult to make results and organizations' contribution to healthy aging visible to other organizations and the municipality.</p> <p>Accountability often focuses on numbers and health themes.</p> <p>Need to create visibility of results at different levels.</p>	<p>Municipality A would like to share positive experiences and make those visible.</p> <p>Municipality C would also like more visible knowledge regarding reach, effect, and cost effectiveness. Both would like to be able to compare their efforts with other municipalities. Municipality B would also like to compare results within its own municipality between stakeholders</p>
Management	<p>Status quo situations due to financing structures, competition, and the focus on cost effectiveness and efficiency management.</p>	<p>Healthy aging strategies in municipality A are mostly coordinated by policymakers due to the recent reforms.</p> <p>In municipality B, many organizations attribute a coordinating role to themselves.</p> <p>No central coordinator is recognized.</p> <p>Policymakers in municipality C coordinate priority setting and facilitation, and the welfare organization coordinates synchronization between organizations. Both are appreciated and recognized by other stakeholders.</p>

**Comparing municipalities:** municipality C frequently organized network meetings with local organizations to discuss topics relevant to the aging population. Discussions went beyond health-related themes (what to address?) and increasingly included ways to better address and involve target groups and ways to achieve a multi-disciplinary approach in which organizations would collaborate (how to do so in practice?). At the time of these interviews, the other municipalities lacked such an infrastructure.

### Representation of relevant stakeholders

The interrelatedness of health themes as described above, is one of the main reason why interviewees think an integrated approach is required to effectively work on healthy aging strategies. The notion that one organization alone only has a limited perspective and reach is supported by the interviewees:

*We really should work towards a more integral approach. Everyone just focuses on their own theme and has little idea about what others are doing.*

Although interviewees stressed the importance of the representation of several organizations, they were not very explicit about who specifically should be involved and in what way this could be facilitated.

However, they were explicit about the involvement of the targeted audience in the development and implementation of services. In this connection, interviewees mentioned client panels, and needs assessments were being used, but there was doubt whether this was sufficient. Better representation of clients was seen as the way to improve the extent to which projects managed to involve hard-to-reach groups. Services such as senior advisory services had positive experiences with the use of person-to-person contact:

*Together we can work out a solution. On how to support someone until he feels safe and secure enough to be able to move on. But you'll need to ask questions and figure things out together, it's almost never arranging 'meals on wheels' by itself that fixes the problem.*

Interviewees indicated that collaboration should not focus only on the inclusion of professional organizations or targeted groups. Since social support is mainly provided through personal networks, many relevant stakeholders can be found there as well:

*Care is not about professional organizations alone, it is about the whole environment. Everyone is important, neighbors, family.*

**Comparing municipalities:** all three municipalities had secured the representation of target groups through panels, advisory committees, and surveys. However, this did

not mean that input gained in this way was optimally used. In both municipality A and municipality B, organizations pleaded for more active involvement of target groups – either by more personal contact and target group participation in the development of services (A) or by adopting a more demand-driven approach (B). In municipality C, organizations valued the active participation of target groups through panels and had good experiences when employees of organizations actively approached members of the target group.

## Roles and responsibilities

The way roles and responsibility were attributed was influenced by organizations' objectives, the audience they target and the services they provide. Some organizations aim at the whole population and offer extra services to aging groups. Other organizations use stricter age-related definitions and provide services for people aged 55, 65, or 75 years and older. Homecare and some loneliness and depression prevention programs are examples of services that need a medical indication by another organization, such as the CIZ (central indication in care) or a general practitioner.

Interviewees mentioned that it was hard to work outside of their set aims and targets because that was not what one was paid to do. Moving towards other issues might mean interfering with other organizations' business. Financing structures further enhanced this effect.

*If you force a collaborative structure with financial incentives, people will all participate with their own agendas. They come to find out what the competitor will do instead of making something new happen.*

Organizations formerly used to acquire funding in many different ways and through different channels and policy acts. With the introduction of the social support act, municipalities became responsible for the central distribution of these finances. Former collaborative partners now see themselves as competitors for the same grants and clients. This has resulted in uncertainty about responsibilities and role definitions and has affected inter-organizational relations.

**Comparing municipalities:** the three municipalities differed in the way organizations related to and approached each other. The extensive reforms in municipality A have caused extra uncertainties on top of the changes in financing structures enforced by the social support act. Organizations needed to become acquainted and redefine their roles within this new structure. In municipality B, organizations were not very familiar with each other and sometimes even felt uncomfortable with each other, hampering collaboration. Municipality C actively fostered familiarity between organizations by

organizing network meetings. During interviews organizations frequently mentioned each other's activities, ways in which they collaborated, and links with other organizations. Roles were defined by the unique contribution organizations could make to healthy aging within this municipality.

### **Communication infrastructures**

Interpersonal contact between employees of different organizations was mentioned to contribute to more effective approaches:

*You have to approach each other, get to know each other. Collaboration happens when you are familiar and you find yourself in a situation in which you think: 'what should I do next? I could phone George, maybe he has a suggestion?' But if you don't know him, how can you think about phoning him?*

However, rapid changes in personnel made it hard to get to know each other. Also, it seemed to be easier for employees of different organizations to make contact on work-floor level rather than on management level:

*I had good contact with her but they split us up. Our managers were having trouble with each other. So we were told we had to do our jobs separately even though our collaboration worked out fine!*

An example from the interviews concerning the way computer training in municipality C was organized illustrates the value of familiarity between organizations in synchronizing activities and developing new initiatives:

*We [senior housing] closely collaborate with the welfare organization to open an internet café. We provide the space, furniture and computers. They arrange skilled volunteers, training and information manuals.*

**Comparing municipalities:** the communication infrastructure in municipality C facilitated coordinated action as well as helped to sustain it. Experiences like the aforementioned computer course could be shared with other organizations. Stakeholders in municipality A would have liked to have such infrastructure, but it still needed to be created. The local initiative 'central information points' that provided information to both target groups and organizations were frequently mentioned as a great opportunity to create an infrastructure. Stakeholders in municipality B did not have such a shared vision.

## Visibility of contributions and results

Interviewees mentioned many different small-scale successes and outcomes of projects that made them proud. Collaboration with other organizations within the municipality, such as the publication of an information guide, reaching frail seniors through outreaching home visiting projects, and tailored services to clients, were examples of this. However, evaluation reports focused mainly on health outcomes and provided little room for this kind of small-scale successes and intermediate results. Interviewees therefore voiced difficulties in communicating the impact of their contributions to healthy aging in the right way, at the right place, and the right time. They were mainly asked for results in numbers, whereas the results of many activities could be better measured in terms of experiences.

*A lot of money gets allocated to specialist care. No research ever focuses on the effectiveness and opportunities of assisting people with normal and daily challenges. That's where professionals can act swiftly and smoothly and really can make a difference. But what if things really were that simple? The medical industry can't benefit from that now, can they?*

**Comparing municipalities:** to create visibility, evaluation of efforts was perceived as essential. Policymakers in all three municipalities voiced the need to compare their efforts with others in order to find out how well they were doing themselves. Municipality B would also have liked to compare results over organizations within the municipality itself. The following remark was made by one of the municipal policymakers from municipality C:

*How can we know whether we are doing the right stuff? I always think we are doing well, have many facilities and good inter-organizational contacts. But when we get the results of an senior inhabitant survey, health is never improved. In 2005, loneliness even increased! That leaves me with many questions you know...*

This excerpt illustrates how monitor results were used as evaluation and how information provided was not perceived as sufficient. At the same time, interviewees mention results at health outcome level were often too ambitious. They were hard to achieve and took a long time to become visible. What exactly to evaluate and how to do so were also discussed during the interviews. In this regard, organizations from municipality A would have liked to show what was working well and share positive experiences. Organizations from municipality C expressed the same view, but stressed that they needed more knowledge regarding reach, effect, and cost effectiveness in order to improve their efforts and formulate realistic aims and objectives.

## Management

Stakeholders sometimes perceived situations where no new initiatives were undertaken due to the new financing structures and induced competition. Organizations waited to see what others would do, resulting in a status quo situation.

*Nothing happens anymore, everyone is just looking at each other. If you are going to do this, I will do so as well. So, that's how commercializing turns out to be. No one wants to take responsibility anymore.*

The focus on cost effectiveness in accountability and evaluation also hinders the development of new approaches.

*You have to WANT something. Organizations are all discouraged by years of efficiency management which still dictates the way decisions are made. That's why results are accounted for in the wrong way, wanting to DO something is what really counts in my opinion.*

**Comparing municipalities:** because of the recent reforms at the time of these interviews, municipality A was mostly coordinated by policymakers. Most parties, however, including policymakers, would have liked to establish a more objective, central coordinator within the new municipal structure. The need for such a role was generally recognized. In municipality B, many organizations attributed some kind of coordinating role to themselves. No central coordinator was recognized, and organizations were in doubt about the role that other organizations attributed to them. Municipal policymakers tried to fulfill a coordinating role, but the many changes in personnel hindered personal contact and trust in relation to this coordinating role. In municipality C, the coordination of policy, priority setting, and facilitation of coordinated action was mostly in the hands of municipal policymakers. The local welfare organization coordinated synchronization between different organizations, implementation of policy through activities, and the sharing of knowledge through networking. This resulted in a strong and commonly recognized coordinating role.

## DISCUSSION AND CONCLUSION

Stakeholders from diverse organizations were found to share visions on *how* to address healthy aging in practice. Examples were: the importance of an integrated approach, participation of older people in the development of facilities, improving the presentation of facilities, how to reach hard-to-reach groups, and the involvement of social networks.



Financing structures and working routines however were found to emphasize what to address with regard to healthy aging, like for instance loneliness. Collaborative efforts, although valued by interviewees, were hampered by this approach.

Familiarity between organizations and visibility of results relating to shared visions were found to be essential in facilitating collaboration. Visibility of results is a prerequisite to gain insight in the equal distribution of benefits. Mantoura et al. (2007) also identify this as important to facilitate collaboration as well as communication and trust Mantoura et al. (2007). In this regard, familiarity between organizations contributes to both communication and trust.

Municipalities are all situated in the same region and are quite similar concerning health issues in their aging populations. However, this study has revealed difference in the extent to which prerequisites for coordinated action are fulfilled. Whereas municipality C provides sufficient infrastructures to successfully implement new interventions or activities, municipality A and municipality B need to work towards such an infrastructure before interventions can be implemented. Next to this, recent changes due to reforms and the introduction of the social support act, result in confusion concerning stakeholder roles and induce competition. The resulting lack in coordination hinders collaborative processes.

Klein Woolthuis refers to such challenges as systems failures (also see chapter 3). Four categories of systems failures can be distinguished being: 1) Infrastructural failures, concerning both the absence of physical infrastructures and the lack of an adequate knowledge infrastructure. 2) Institutional failures, which concern hard institutions such as rules, regulations and financing structures, and soft institutions being working routines, perceptions, norms and values. 3) Interaction failures, in which contact between involved actors is either too strong, limiting the inclusion of other points of view, or too weak where actors never reach a point of mutual understanding and trust. 4) Capabilities failures, that refer to the extent to which organizations are capable to adapt new working routines and use new knowledge. Entrepreneurship and staff qualifications are essential capabilities in this regard (Klein Woolthuis et al., 2005). Main challenges arising from this study can be related to these systems failures and will be addressed in the following sections.

## **Dominancy of health-theme based approaches**

Stakeholders share a vision on several aims. However, in practice, most organizations address specific health-related themes, related working routines hamper collaboration resulting in soft institutional failures. Current financing structures and policy strategies, although valuing collaboration, induce competition and force organizations to stick to their theme-based objectives, this can be referred to as a hard institutional failure. Also, intended health outcomes usually take a long time to become visible which makes demonstrating the impact of stakeholders' contributions to healthy aging difficult. Short-term and intermediate level outcomes need to be defined and measured in order to contribute to the visibility of contributions (Koelen & van den Ban, 2004).

## Interaction gap between supply and demand

The reach of the supplied facilities and activities is questioned by interviewed stakeholders and could be caused by the content of the supplied facility not meeting the demands of the targeted audience. However, this study indicates otherwise. The presentation of supplied facilities might not be adequate to reach the intended audience, resulting in interaction failures. A previous study performed within the same municipalities but with a focus on aging individuals perspectives on healthy aging, indicated this as well. This study concluded that aging persons did see the value of available facilities but did not want to relate to them in terms of usability to themselves. The way facilities were presented with a focus on health risks and age were main reasons for this (Naaldenberg, Vaandrager, Koelen, & Leeuwis, 2011; see chapter 4). Overall, there exists an interaction gap between the way facilities are presented and the way they are perceived by those intended to use them. Findings within this study show how interviewees suggest more active involvement and participation of aging individuals is needed to close this gap.

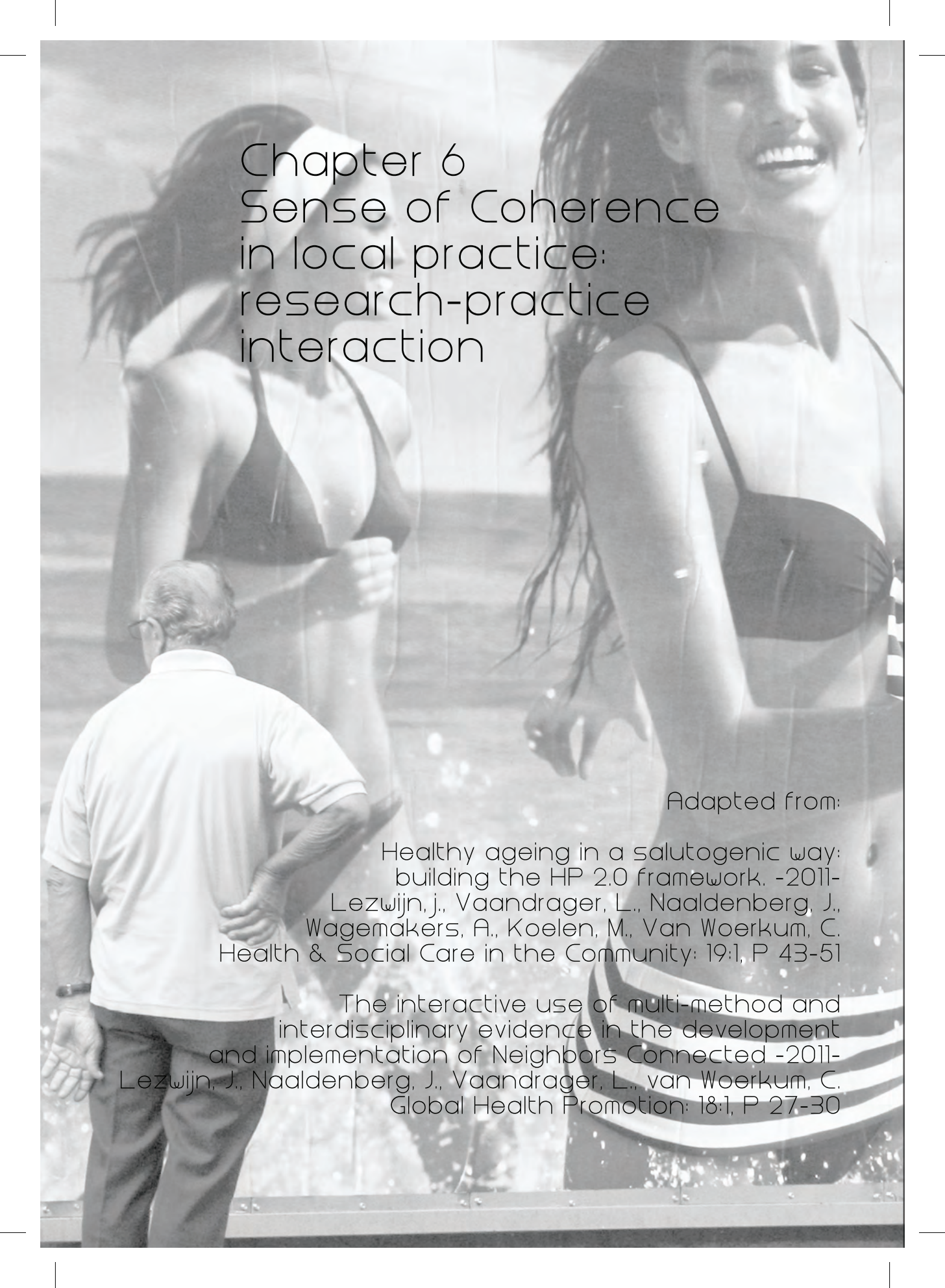
Although the health issues may be largely the same for the aging population in all three municipalities, the differences in context would point to the inadvisability of implementing the same program in the same way for all. This calls into question the current trend towards implementing only uniform, specified, and certified evidence-based interventions (Armstrong, Waters, Crockett, & Keleher, 2007; Speller, Wimbush, & Morgan, 2005). It can be concluded that coordinated action between organizations cannot be taken for granted and requires attention in project plans.

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## Chapter 6 Sense of Coherence in local practice: research-practice interaction

Adapted from:

Healthy ageing in a salutogenic way:  
building the HP 2.0 framework. -2011-  
Lezwijn, J., Vaandrager, L., Naaldenberg, J.,  
Wagemakers, A., Koelen, M., Van Woerkum, C.  
Health & Social Care in the Community: 19:1, P 43-51

The interactive use of multi-method and  
interdisciplinary evidence in the development  
and implementation of Neighbors Connected -2011-  
Lezwijn, J., Naaldenberg, J., Vaandrager, L., van Woerkum, C.  
Global Health Promotion: 18:1, P 27-30

## INTRODUCTION

The results from chapters 4 and 5 do not provide a single, clearly defined solution to improve healthy aging within participating municipalities. Rather, these results present a multitude of practical issues, ranging from the mismatch between the positive (assets) view on healthy aging by older people and the way local activities and facilities often stress the negative consequences of aging by addressing isolated risk factors, to the need felt by local professionals to collaborate and at the same time make their own contributions to healthy aging more visible. Follow-up steps were needed to convert these insightful ideas and experiences into purposeful actions.

To do so, the results from this thesis, combined with results from other AGORA projects, were presented to local stakeholders in active workshop formats within each municipality. Professionals as well as members of the target audience were invited to these meetings so that follow-up steps could be co-created. Jeanette Lezwijn's AGORA project guided these local processes by means of action research. For this thesis, this approach offered the desired opportunity to assess how systems thinking could be further integrated in health promotion practice.

First, to be able to appreciate and value the multitude of shared perceptions and ideas, discussions were required. However, stakeholders had not only different perspectives but also different demands and priorities concerning healthy aging. To facilitate discussion while at the same time appreciating these differences, a common ground was needed. This resulted in the co-creation of a framework to guide discussion. Next, the application of this framework resulted in the co-creation of a concrete project.

The main body of this chapter contains an adaptation and integration of two peer-reviewed and published papers co-authored by the author of this thesis (see title page). This chapter first describes the framework that was co-created in the context of AGORA in order to enable all parties involved to collaborate meaningfully in a complex environment. Subsequently, the chapter presents the project that was developed through the use of this model, and reflects on its potential for addressing healthy aging in a complex environment.

## METHODS

Both the framework and the project were the result of action research in which stakeholder participation played an essential role. Action research aims to analyze the situation and its problems, to find solutions to address problems, and to look for opportunities to put these solutions into practice. Results of each step in the research are fed back into practice to inform and enable decision making on how to proceed in practice (Koelen & van den Ban, 2004). At the same time, experiences in practice are fed back into research as well, creating an iterative process.

This chapter builds on input gained through interactive feedback sessions that applied systems thinking approaches (Checkland, 2000; Engel, 1995; Groot & Maarleveld, 2000; ICRA, 2009). In addition to the organized workshop sessions, results originating from chapters 4 and 5 were also presented within existing infrastructures such as policy meetings and existing local network meetings. Table 6.1 provides an overview of subsequent sessions per municipality and their participants.

**Table 6.1** Overview of local presentations and workshops

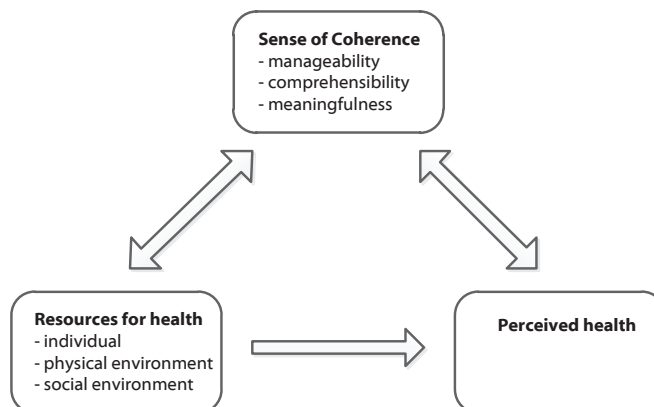
Sessions	Participants
<b>Municipality of Berkelland</b>	
March 18, 2008 Interactive workshop with local stakeholders	15 local stakeholders: homecare, welfare, housing, regional organization for people with limitations, sports federation, council representing seniors, local library, union of volunteers, churches, political party representatives
April 24, 2008 Interactive workshop with older inhabitants of Berkelland	60 older individuals, some of them representing organizations such as: churches, volunteer organizations, women's organizations and residence for older people
June 5, 2008 Presentation of results at a meeting of local stakeholders concerning local coordination and information	6 stakeholders from the municipality (policy) and the main welfare organization
<b>Municipality of Epe</b>	
June 2007 Presentation of results at existing Round Table Meeting	28 local stakeholders: association for older people, homecare client counsel, churches, mental healthcare organization, women's organizations, housing
June 13, 2008 Interactive workshop at specially organized Round Table Meeting	39 people, some representing organizations such as: churches, homecare organizations, social work, volunteer organizations, municipality, welfare, mental health organizations, women's organizations, housing
June 12, 2009 Round Table Meeting, presentation linked to existing infrastructure Aging in Epe	25 people, mostly representing organizations: Churches, homecare organizations, social work, volunteer organizations, municipality, welfare, mental health organizations, women's organizations, housing
<b>Municipality of Zutphen</b>	
October 8, 2007 Meeting with local policymakers, initiated by municipality	12 policymakers representing different policy areas: health, wellbeing, spatial planning, housing, sport, environment
March 13, 2008 Local council meeting about aging and policy	Approximately 40 local stakeholders
October 2, 2008 Presentation and discussion at existing local network meeting	20 local stakeholders: municipality, welfare, general welfare, housing, senior housing, local community projects
November 12, 2008 Presentation and workshop at existing panel	30 local citizens

Overall, around three presentations/workshops were organized per municipality. The development of both the framework and project proceeded in an iterative way and overlapped each other in time. In general, the earlier meetings had a focus on creating a common ground, and meetings at a later point in time worked towards the co-creation of follow-up steps, resulting in a project. Experience and insights from workshops were shared between municipalities and used so that each following step could build from preceding experiences.

## BUILDING THE HP 2.0 FRAMEWORK

To manage intersectoral collaboration in health promotion practice successfully, it is widely accepted that it is essential to have a stable team that is able to provide a broad range of services (Axelsson & Axelsson, 2006; Koelen, Vaandrager, & Wagemakers, 2008; Wagemakers, 2010). The academic collaborative AGORA puts a lot of effort into creating collaboration within participating municipalities. In practice however, we experienced that this was rather difficult to achieve. A main reason for this was that participating stakeholders had different demands about the development, implementation, and evaluation of local healthy aging strategies (Naaldenberg, Vaandrager, Koelen, Lezwijn, & Leeuwis, submitted; see chapter 5).

To be able to reach consensus, it was felt that common ground was needed. In order to support collaboration, a framework was developed together with local stakeholders. Creating content together is a principle that is also found and successfully applied on the internet. These internet applications are referred to as web 2.0 applications and examples include Facebook, Wikipedia, LinkedIn, and Twitter. The main attribute of web 2.0 applications is that content is created in a participative way and, by doing so, these applications facilitate participative processes (Chui, Miller, & Roberts, 2009), much like AGORA tries to facilitate participative processes in the municipalities. In line with this, the developed framework to guide health promotion practice was named the HP 2.0 framework (see figure 6.1).



**Figure 6.1** The HP 2.0 framework to facilitate collaboration in a complex environment.



## Development of the HP 2.0 framework

During the presentation of results originating from chapters 4 and 5 of this thesis, three key points arose from the multitude of issues discussed:

1. Why are older people in one municipality, which has more activities, facilities, and services for older people compared to other municipalities, not healthier than older people in other municipalities?
2. According to Dutch national policy, municipalities are responsible for creating supportive environments for all older people to participate in society. Therefore, municipalities want to appeal to the sense of responsibility of the older persons themselves, and their social network, to actually participate. How can the municipalities support these people to participate in society?
3. There are already many activities, facilities, and services for older people in the municipalities. Do we need to develop new initiatives to promote healthy aging or is it possible to build upon and improve existing facilities?
4. Older participants in the discussion explicitly recommended that a great effort should be made to reach those aging individuals who are more or less vulnerable and could be reluctant to avail of the opportunities offered by a municipality to participate in society (Lezwijn et al., 2011).

These issues, however, did not relate to a specific health risk for the aging population. Stakeholders therefore experienced difficulties in relating such issues to their aims and in appreciating diverse perspectives on how to approach such issues in the development of a possible project. Building on this feedback, AGORA developed a conceptual framework to support the municipality and other stakeholders in discussing these issues and collaborate in a constructive way. A first draft of the framework and its central concepts was outlined and discussed in three participating municipalities. Bilateral meetings with policymakers, and interactive group sessions in which professionals and older people participated, provided feedback on this first draft of the framework. The feedback received confirmed that the framework could support healthy aging at a local level because of its ability to integrate different sectors such as welfare and health.

The final version of the framework consists of three main concepts and the relations between these concepts. These concepts and their relations will be elaborated on in the following sections. The cornerstone of the framework lies in the adoption of an assets-based approach to better match aging persons' perceptions. The theory of Salutogenesis (Antonovsky, 1987), which addresses what constitutes health as opposed to what causes disease, was therefore included in the framework by means of the Sense of Coherence concept. This concept addresses the extent to which older people feel able to use available resources.

## Concepts

### *Health*

The concept of *health* in this framework follows the WHO definition of health and includes physical, mental, social, and spiritual well-being. Because of these different dimensions, health is considered as an asset and as the result of a series of complex processes in which an individual interacts with the social and physical environment (World Health Organization, 1986). Interesting in this regard is the fact that self-perceived health is a more effective predictor of mortality than objective medical ratings (Idler & Benyamini, 1997).

### *Resources for health*

The *resources for health* are resources that older people can use in order to be in control of situations affecting their lives (Forbes, 2001). Salutogenesis defines such resources as *generalized resistance resources* (GRR) (Antonovsky, 1987, 1996). The resources for health concept is partially similar to that of GRR but also includes potential resources in the physical and social environment that can be used for better health in the future. These resources may be available within the local context, but may not be familiar to everyone. Examples of potential resources in the social and physical environment are public transport, the healthcare system, the public library, and activities organized by welfare organizations.

### *Sense of Coherence (SOC)*

Within the theory of Salutogenesis, the ability to use available resources in a health promoting way is defined by the Sense of Coherence concept. In the HP 2.0 framework, SOC refers to the way in which older people feel able to use available resources (Antonovsky, 1987, 1996; Lindström & Eriksson, 2005). SOC encompasses three different dimensions: 1) *manageability*, the instrumental component, 2) *comprehensibility*, the cognitive component, and 3) *meaningfulness*, the emotional component.

An individual's level of SOC can be measured by means of the Orientation to Life Questionnaire (OLQ), which is used in both qualitative and quantitative methods (Lindström & Eriksson, 2010). There is still a lot of discussion about the stability of SOC. Although the original theory states that SOC develops until the age of 30 and is relatively stable afterwards (Antonovsky, 1996), some studies discuss the possibility of changing an individual's SOC (Eriksson & Lindström, 2008; Lindström & Eriksson, 2009). Other studies show that SOC is more stable among those people who have initially a high SOC (Hakanen, Feldt, & Leskinen, 2007; Nilsson, Holmgren, Stegmayr, & Westman, 2003) and is less stable among those people with a low SOC.

## Relations

### ***Resources for health → Health***

The relationship between resources for health and perceived health visualizes the effects of resources and interventions aimed at improving health at the individual level. Resources can contribute to the different dimensions of health (i.e. social, physical, mental, and spiritual). The effect of interventions is often evaluated in relation to specific individual health determinants such as exercise and other lifestyle outcomes (Rootman et al., 2001). This implicates that changes in the social and physical environment are not made visible in such evaluation designs. Health itself can be measured by more objective standards such as prevalence of disease or medical ratings, but it is also often measured by concepts such as self-perceived health (Bowling, 2005).

### ***SOC ↔ Health***

The relation between SOC and health receives a lot of attention in the literature. A strong Sense of Coherence is found to have a positive influence on perceived health (Eriksson, 2007; Geyer, 1997; Hakanen et al., 2007; Langeland, Wahl, Kristoffersen, Nortvedt, & Hanestad, 2007; Nesbitt & Heidrich, 2000; Olsson, Hansson, Lundblad, & Cederblad, 2006; Read, Aunola, Feldt, Leinonen, & Ruoppila, 2005; Söderham & Holmgren, 2004). People with a higher SOC often feel more confident about their lives, and SOC is also positively associated with quality of life (Borglin, Jakobsson, Edberg, & Hallberg, 2006).

Conversely, health has an influence on SOC as well. Health is one of the factors responsible for the maintenance of an individual's level of SOC (Read et al., 2005). People in good health often find it easier to make use of the resources in the physical and social environment. Health can also have a negative influence on SOC (Lundberg & Nyström Peck, 1994; Read et al., 2005). Anxiety and depression (mental health) are found to have a high negative impact on SOC (Olsson et al., 2006).

### ***Resources for health ↔ Sense of Coherence***

The relationship between resources for health and SOC in the framework can be described as a *salutogenic relationship*. It addresses the interaction of an individual with resources in the physical and social environment (Eriksson, 2007; Lindström & Eriksson, 2005). This means that a supportive environment contains resources that enable older people to live their lives despite possible limitations.

Resources for health in the social and physical environment can aim to improve health as described in the resources → health relation. According to the developed framework, resources can also aim to strengthen SOC. For instance, chapter 4 of this thesis showed how the use of a walking aid, such as a mobility scooter or walking frame, can be experienced in different ways. Whereas one person might feel empowered to manage physical challenges

(increasing SOC) another person might feel dependent and out of control (decreasing SOC) (Naaldenberg, Vaandrager, Koelen, & Leeuwis, 2011; see chapter 4). This example shows that different people give different meanings to the same resource for health.

People with a strong SOC are found to be more capable of identifying, using, and re-using the resources for health. These people are more confident about having control over their own choices and their situation by using their resources for health, but probably are also more open to other potential resources for health (Eriksson, 2007; Lindström & Eriksson, 2005; Lindström & Eriksson, 2006). People with a strong SOC probably have a greater variety of resources (GRR) at their disposal and know better how to use them. In that case, there is an interaction between resources and SOC (Hakanen et al., 2007).

## Discussion and conclusion

The proposed framework is intended to support collaboration by creating a common ground to support the processes of the development, implementation, and evaluation of healthy aging strategies. In particular, the relationship between resources and SOC, the so-called salutogenic relationship, is an essential contribution. Evaluation of interventions tend to focus on the relationship between resources (or interventions) and health (outcomes). Consequently, there is little information about underlying processes and reasons why interventions are effective or fail to achieve the desired effect. The inclusion of the relationship between resources and SOC draws attention to these underlying processes by addressing the fact that resources can have different meanings to different persons (meaningfulness dimension of SOC), that usability or accessibility may differ between persons (manageability dimension of SOC), and that resources are not always perceived as intended by the providing organization (comprehensibility).

Including this salutogenic relationship shows how a variety of research methods and qualitative and quantitative data are needed to gather information and to gain insight into the motives and the contexts of older people and into desirable preconditions of resources for health. This information and these insights can be used as input for the development and implementation of the resources for health for older people and can also serve as input for evaluation purposes.

The HP 2.0 framework provides a background in which all the described concepts and their relationships can be evaluated. This contributes to the expressed need for local professionals to collaborate and at the same time make their own contributions to healthy aging more visible. The framework offers space for outcomes that complement health outcomes. In this way, results obtained by addressing issues that cannot be measured in terms of improved health, such as strategies to reach *hard-to-reach groups*, can be explicated.

To strengthen the salutogenic relationship between SOC and resources, aging individuals should perceive available resources as meaningful, comprehensible, and manageable. However, in practice municipal policymakers, welfare workers, knowledge

institutes, and other professionals often decide which resources for health are important for older people. The ideas of professionals about healthy aging often do not match those of the elderly people themselves (Naaldenberg et al., 2011; see chapter 4). Active participation of aging individuals in the development of resources is therefore essential.

## NEIGHBORS CONNECTED

The framework outlined above was used as a reference point for developing a specific healthy aging intervention called 'Neighbors Connected'. The following section describes how different types of knowledge and different perspectives were synthesized in the design of this project and reflects on the process through which this happened and the potential of the outcome in addressing complex environments. To develop Neighbors Connected, input was collected in three different ways:

### ***1) An extended analysis of quantitative survey data:***

Epidemiological analysis of data from the 2005 senior inhabitant survey by the community health service GGD Gelre-IJssel was used to determine risk factors of aging and indicators contributing to healthy aging. Cluster analysis of the monitor data revealed different groups of aging individuals. The clusters in which older people were less socially engaged scored lower on perceived health than the clusters of older people who were more socially engaged in the form of leisure or work (including voluntary work) (Croezen, Haveman-Nies, Alvarado, Van 't Veer, & De Groot, 2009). Neighbors in particular were found to contribute to well-being, which is in line with and supported by the results from the interviews that also indicated the importance of social support and social capital.

### ***2) Interviews with main stakeholders including target groups:***

Local professionals, policymakers, and older inhabitants were approached to participate in interviews that explored differences in perceptions and goals with respect to healthy aging. These interviews showed that older people perceive health and aging as a part of their daily lives (chapter 4 of this thesis). Furthermore, older people with serious physical problems can be very able to function up to a satisfactory level, whereas someone with minor problems experiences this as very problematic. This indicates that physical health status alone does not explain the way older people experience health. A feeling of being in control was found to play an essential role in this. To feel in control, respondents indicated the importance of both social and physical resources in their vicinity. Interviews with local organizations underlined the importance of control and empowerment (chapter 5 of this thesis).

### **3) Interactive sessions with stakeholders:**

The preceding results from both qualitative and quantitative studies were discussed with relevant stakeholders in order to validate findings, set priorities, and think about follow-up steps. In these discussions, the problem of hard-to-reach groups, such as lonely or frail older people, played a central role. On the basis of research results and these discussions, it can be concluded that social participation, reduction of loneliness, and perceived feeling of control are shared interests among those involved. This was further explicated during the discussions, resulting in key principles that were defined collaboratively as:

1. use a positive or assets approach to healthy aging,
2. create a supportive environment in which neighbors play an active role,
3. increase visibility of facilities,
4. actively involve older people in their in own situation.

### **Utilizing research results and creating learning experiences**

Results were used and valued at different levels: 1) between involved researchers, 2) between stakeholders, 3) between stakeholders, researchers, and aging individuals. First, close collaboration between researchers resulted in mutual learning and synthesizing of approaches, questions that arose in interpreting quantitative data were added to the interviews, and the results from these interviews were strengthened by investigating them quantitatively. To do so, the challenge of appreciating each other's designs, especially when one came from a qualitative background and another came from a quantitative background, had to be overcome. Informal contact between researchers created mutual trust and understanding that facilitated collaboration and shared learning from each other's perspectives.

Second, the interactive discussions among stakeholders created opportunities to learn from different perspectives, increased familiarity between organizations, and created opportunities for researchers to learn how to present their findings in a way that local organizations and policymakers could put them into practice. Difficulties encountered concerned the time it took to formulate shared goals and objectives. Health promoting programs often require pre-defined goals and controlled evaluation designs. Since goals had to be defined in collaboration and were not ready available, this resulted in uncertainty. An alternative approach to planning had to be adopted in order to overcome this challenge (Lezwijn, Vaandrager, Wagemakers, & van Woerkum, 2010).

Third, the interactive session with both stakeholders and target groups revolved around several issues, being: 1) the importance of issues such as health, happiness, pleasure, and convenience as motivations to be socially participative, 2) the ideal social and physical environment for older people, 3) the support older people need to participate in society, and 4) the need for new activities vs. improvement in the quality of existing activities. In other

words, these discussions resulted in the co-creation and more explicit formulation of key points. A challenge within this approach was to find ways to combine all input into a project and to do justice to all the ideas suggested by participants. The use of the HP 2.0 framework in practice stimulated the inclusion of different stakeholder perspectives and different types of knowledge, originating from both quantitative and qualitative research. How to integrate such an approach in (scientific) evaluation is a challenge to overcome, especially with regard to planning since evaluation designs tend to work with pre-defined goals.

Overall, Neighbors Connected is the outcome of a combination of different perspectives, knowledge, and experiences. The aim of the project is to improve and sustain the social participation and engagement of older people. Another goal is to build an infrastructure that facilitates older people to be active in the community and create greater awareness of health promoting resources among older people.

Identified key points such as social participation, neighbors, local resources, lonely older people, and better visibility of facilities were all used to build this project. As a result, Neighbors Connected removes barriers for active older people who are willing to do something within their community, but who are facing, for example, financial and practical constraints. Furthermore, the project removes barriers that might prevent less socially active older people from participating. These older people are *invited* by their neighbors to participate in activities that are meaningful to them within their vicinity. Examples of organized activities include: starting a touring club for people with mobility scooters, making Christmas cards, an afternoon about the local dialect, and going to the theatre together. The initiators of activities are also responsible for inviting participants. The collaborating partners of Neighbors Connected facilitate these activities with practical and financial support. Financial support can be provided up to an amount of €500 per initiative, practical support can for example consist of help with organizing, planning, or attracting publicity.

The development and implementation of Neighbors Connected was a process in which different results originating from research conducted within the AGORA healthy aging program were used. The academic collaborative setting facilitated these processes because it simplified the creation of opportunities to share knowledge and create social learning among the different involved actors (Naaldenberg et al., 2009; see chapter 2). However, because of the active involvement of organizations, policymakers, and older people, these processes were not as straightforward as expected. For example, the objectives of the project were not defined in advance, but were developed in collaboration with all stakeholders. Furthermore, practice showed that capacity and time were needed to facilitate intersectoral collaboration and participation. Involving the community within the different phases of the intervention, however, is essential to build supportive communities — just as important as the involvement of relevant stakeholders. It gives the opportunity to link the project to existing social and cultural networks. For Neighbors Connected, this resulted in a grant from Gelderland province to expand the intervention into another community.

Next to this, the project resulted in 11 organized activities between May 2009 and May 2010, after which local stakeholders continued the project with an additional eight activities between September 2010 and December 2010. The evaluation of whether inviting people to locally organized activities works as a strategy to increase awareness, to increase reach among hard-to-reach groups, and to increase social engagement, is still in progress. However, the results described in Part II of this thesis underline the theoretical possibility of doing so.

## DISCUSSION AND CONCLUSION

To operationalize systems thinking, it appeared not sufficient to simply collect and mobilize different perspectives and ideas. In order to meaningfully collaborate a framework that could provide common ground to put these different perspectives, insightful ideas and experiences into purposeful actions was needed. This framework included the concept of Sense of Coherence (SOC) to enable dealing with complex environments.

By including Sense of Coherence in the framework, complex processes and relationships are better appreciated than in a model that solely includes resources and health relationships, because it addresses the fact that resources can have different meanings for different people (meaningfulness dimension of SOC), that usability or accessibility may differ between persons (manageability dimension of SOC) and that resources are not always perceived as intended by the providing organization (comprehensibility). This also provides additional viewpoints on the effectiveness of interventions for evaluation purposes. This framework eventually served to integrate perspectives and develop a specific intervention that served to operationalize the dimensions of SOC. Neighbors Connected provided a practical illustration of how the dimensions meaningfulness, manageability, and comprehensibility appear in shared goals and objectives:

### **1. Use a positive approach to healthy aging**

The desired positive and assets approach is very well reflected by salutogenesis, which focuses on what keeps people healthy. This was reflected in the aims of Neighbors Connected that did not focus on a health risk, such as loneliness, but on assets like: improve and sustain social participation and engagement, facilitate older people to be active in the community, and create greater awareness of health promoting resources among older people.

### **2. Create a supportive environment in which neighbors play an active role**

The ability to be active and engaged in one's environment relates to the manageability dimension of SOC. In this connection, the findings from chapter 4 indicate that older persons find it easier to access resources in their immediate vicinity.



### 3. *Increase visibility of facilities*

Although many facilities are available, they do not always reach the intended groups. Better visibility of resources is therefore desired. The findings in chapter 4 show how the sharing of experiences with activities and being invited to activities removes barriers to participation in a way that paper only information can never do. This more personal form of information relates to the comprehensibility of existing resources. Being invited by someone who is familiar increases the meaningfulness of participating.

### 4. *Actively involve older people in their own situation*

Neighbors Connected provides those involved with opportunities to participate in the creation of activities that are meaningful to them.

This chapter has made clear that the concept of SOC is a promising concept that helps to bridge perspectives and develop interventions. In this chapter the concept is used merely in a qualitative manner, as a concept that orients discussion and guides action. However, quantitative measurement of SOC could potentially be useful for health promotion practice. An individual's level of SOC can be assessed by using the Orientation to Life Questionnaire. In this way, SOC can be used as an outcome measure at population or individual level. The HP 2.0 framework provides an additional use of SOC for evaluation purposes. In a more qualitative way, the dimensions of SOC can be used to assess the extent to which a project addresses the dimensions manageability, meaningfulness, and comprehensibility.

Overall, SOC can be framed as an outcome measure where higher SOC leads to better health, or as a concept mediating between resources and health where SOC influences the extent to which resources are used in a health promoting way by the target group. Quantitative measurement of SOC could provide additional information for both the development and evaluation of health promotion projects. Further research including SOC, its dimensions, and the Orientation to Life Questionnaire is needed to gain more insight into applications in health promotion practice.

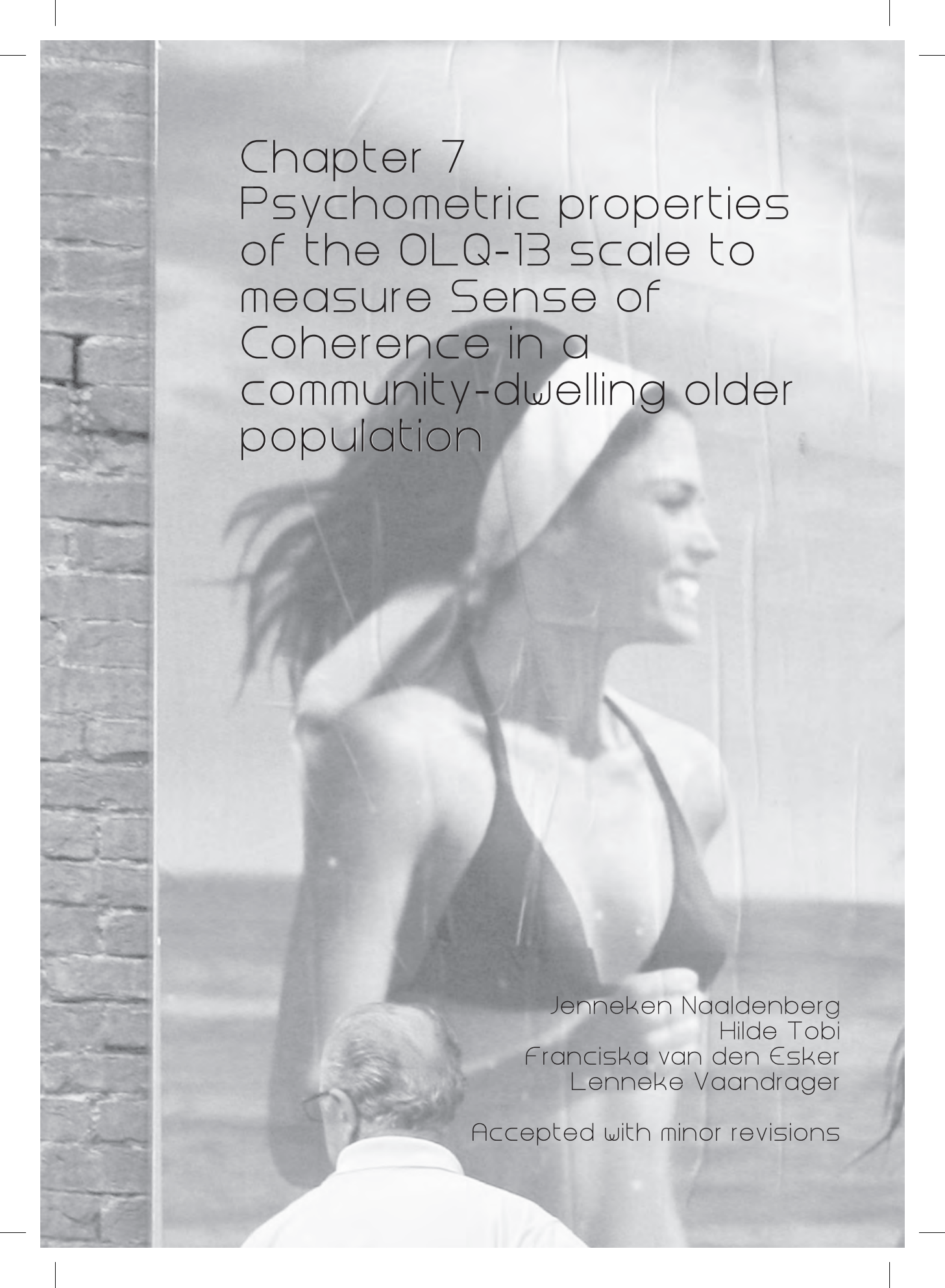
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Chapter 7  
Psychometric properties  
of the OLQ-13 scale to  
measure Sense of  
Coherence in a  
community-dwelling older  
population

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## ABSTRACT

**Background:** With the ongoing demographic shift, quality of life and health promotion among older individuals are becoming increasingly important. Recent research suggests that Sense of Coherence positively affects quality of life. Hence, a valid and reliable measurement of Sense of Coherence is pivotal. The 13-item Orientation to Life Questionnaire (OLQ-13) can be used to measure Sense of Coherence. The purpose of the present study is to assess the psychometric properties, validity, and reliability, of the OLQ-13 in community-dwelling individuals, aged 65 and older.

**Methods:** The OLQ-13 scale was administered as part of a healthy aging project for non-institutionalized people aged 65 years and older. Internal consistency and reliability were assessed by means of inter-item and test-halves correlations and Cronbach's alpha. Construct validity was explored using cluster analysis and exploratory factor analysis (n=703) and tested using confirmatory factor analysis on a separate subset of individuals (n=658). Item face validity was investigated by means of 12 semi-structured interviews.

**Results:** The reliability and the validity of the OLQ-13 in this population of non-institutionalized individuals aged 65 years and older was ambiguous, at least partly due to the poor performance of two items (b and d), which was confirmed by results from the qualitative part of this study. The psychometric properties of the proposed OLQ-11, obtained by deleting the two items, were better. In particular, the interpretation of exploratory factor solution improved. Whereas the underlying theoretical constructs could not be linked to the exploratory analyses of OLQ-13, this was to some extent possible in OLQ-11. The superior validity of OLQ-11 over OLQ-13 was supported by the better model fit in the confirmatory factor analysis.

**Conclusions:** The present mixed-method study suggests the proposed OLQ-11 as a more suitable instrument for measuring Sense of Coherence than the OLQ-13 in a population of aging individuals. This study confirms that the validity and reliability of OLQ-13 may differ substantially in different populations.

## INTRODUCTION

Salutogenesis offers a theoretical approach to health promotion in which Sense of Coherence (SOC), the ability to use available resources in a health promoting way, takes a central place (Antonovsky, 1987, 1993, 1996). Within the salutogenic theory, Sense of Coherence is described as a global orientation that expresses the extent to which individuals have a feeling of confidence that their environment is structured, predictable, and explicable; resources are available to meet challenges; and these challenges are worth engaging in (Antonovsky, 1987). Following this description, Sense of Coherence is further conceptualized by three different dimensions: a) comprehensibility, the cognitive component, b) manageability, the instrumental component, and c) meaningfulness, the emotional component (Antonovsky, 1993; Eriksson & Lindström, 2005; Lindström & Eriksson, 2005). Together, these components reflect the interactions of an individual with resources in the environment. Individuals with a high SOC are expected to be confident that they have control over their situation and know how to act in a health promoting way (Eriksson & Lindström, 2005, 2008).

Sense of Coherence in individuals is usually measured by the 29-item Orientation to Life Questionnaire (OLQ) or the shorter 13-item version of this questionnaire (Antonovsky, 1993; Eriksson, 2007). Items in these questionnaires are designed to measure one of the SOC dimensions: meaningfulness (ME, 8 resp. 4 items), manageability (MA, 10 resp. 4 items) and comprehensibility (CO, 11 resp. 5 items). Items are scored on 7-point scales. Missing values are not allowed in computing a sum score for an individual. Scores for each sub dimension may be computed as well (Antonovsky, 1993).

The OLQ has been translated and used in many countries and in different populations (Eriksson, 2007). A general problem concerning the OLQs is that the three conceptual dimensions never appear clearly from the data in factor analyses (Antonovsky, 1993). Several studies have investigated the factor structure of the OLQs by both exploratory and confirmatory techniques. Some of these studies suggested a one factor structure (Feldt, Leskinen, Kinnunen, & Mauno, 2000; Frenz, Carey, & Jorgensen, 1993; Gana, 2001), whereas others proposed several factors, not necessarily in line with the original dimensions (Larsson & Kallenberg, 1999; Germano, Misajon, & Cummins, 2001). Studies using confirmatory techniques presented a better fit for models with the three dimensions related to SOC (second order three factor models) than models relating the individual items to SOC (one factor models) (Feldt et al., 2000; Feldt et al., 2007; Feldt & Rasku, 1998; Sandell, Blomberg, & Lazar, 1998). Overall, the factorial structure of OLQ seems to be multi-dimensional rather than one dimensional (Eriksson, 2007).

Recent research suggests that interventions aimed at aging populations can benefit by taking into account concepts like Sense of Coherence of individuals in the target population (Naaldenberg, Vaandrager, Koelen, & Leeuwis, 2011; see chapter 4; Lezwijn et al., 2010; see chapter 6; Wiesmann & Hannich, 2008; Billings & Hashem, 2009; Forbes, 2001; Drageset et al., 2008). Hence, a valid and reliable measurement of Sense of Coherence is pivotal. The aim

of this study is to assess the psychometric properties, validity, and reliability of the OLQ-13 in community-dwelling older people, aged 65 and over.

## METHODS

### Data and study population

This study used data from a large healthy aging project (de Vlaming, Haveman-Nies, van 't Veer, & de Groot, 2010) for which a random study sample of 4,050 non-institutionalized people aged 65 years and over was selected from the municipal registration system of three participating municipalities in the eastern part of the Netherlands. Data were collected by means of a 60-item, self-administered questionnaire that included the existing Dutch OLQ-13 (Jellesma, Meerum Terwogt, & Rieffe, 2006). The response rate to this survey was 67%. To limit multiple use of the same data, a random subset of 1,361 respondents was used in this study.

Five items in the OLQ-13 questionnaire were reverse-coded in order to score in the right direction (high score meaning high SOC, see table 7.1). Missing data were handled as appropriate to each specific analysis. Where the focus was on the items within the scale, all respondents on these items were included.

### Reliability and internal consistency

Inter-item correlations, split-half correlations, and Cronbach's alpha were used to investigate reliability and internal consistency. Items were correlated using a standard Pearson's correlation. The split-half reliability procedure was repeated three times, each using different ways to split OLQ-13 into two halves, after which the Spearman-Brown split-half reliability coefficient was computed. The first approach followed a standard procedure for split-half analysis in which the OLQ-13 was split into halves based on order of items (resulting in a test half consisting of items a to g and a test half with items h to m). Next, to create more equivalent halves, different dimensions of Sense of Coherence were taken into account and divided equally over the test halves. In the third approach, the OLQ-13 was divided into test halves based on item score means and standard deviation. Table 7.1 provides an overview of items, questions, and test halves. Cronbach's alpha was computed for the OLQ-13 as a whole as well as for each Sense of Coherence sub dimension.

### Validity

In order to investigate construct validity, the data were randomly divided over a construction set of size  $n=703$  and a confirmation set of size  $n=658$ . First, the construction set was used to explore whether the theoretical dimensions meaningfulness, manageability, and



**Table 7.1** Overview items characteristics and test halves composition (n=1,361)

Item (dim)	Question	Mean SD	th 1 a/b	th 2 a/b	th 3 a/b
a (ME)	Do you have the feeling that you don't really care about what goes on around you? (recode) 1 2 3 4 5 6 7 Seldom or never Very often	5.38 1.49	a	b	b
b (CO)	Have you ever been surprised by the behavior of people you thought you knew well? (recode) 1 2 3 4 5 6 7 Never happened Always happened	4.69 1.77	a	b	b
c (MA)	Have people you counted on, disappointed you? (recode) 1 2 3 4 5 6 7 Seldom or never Very often	4.80 1.78	a	a	a
d (ME)	Until now your life has had: 1 2 3 4 5 6 7 No clear goals or purposes at all Very clear goals or purposes	4.64 1.72	a	a	a
e (MA)	Do you have the feeling that you are being treated unfairly? 1 2 3 4 5 6 7 Very often Seldom or never	5.41 1.60	a	a	a
f (CO)	Do you have the feeling that you are in an unfamiliar situation and don't know what to do? 1 2 3 4 5 6 7 Very often Seldom or never	5.69 1.44	a	a	b
g (ME)	The things you do every day are (recode): 1 2 3 4 5 6 7 A source of deep pleasure and satisfaction A source of pain and boredom	5.25 1.20	a	b	a
h (CO)	How often are your feelings and ideas mixed-up? 1 2 3 4 5 6 7 Very often Seldom or never	5.82 1.40	b	a	a
i (CO)	Do you sometimes have feelings you would rather not have? 1 2 3 4 5 6 7 Very often Seldom or never	5.31 1.55	b	b	b
j (MA)	Many people – even those with a strong character – sometimes feel unlucky in certain situations. How often have you felt this way in the past? (recode) 1 2 3 4 5 6 7 Seldom or never Very often	5.21 1.60	b	b	b
k (CO)	When something happens, do you in your opinion usually: 1 2 3 4 5 6 7 Over- or underestimate its importance See things in the right proportion	4.97 1.36	b	a	b
l (ME)	How often do you have the feeling that there's little meaning in the things you do in your daily life? 1 2 3 4 5 6 7 Very often Seldom or never	5.49 1.38	b	a	a
m (MA)	How often do you have feelings that you're not sure you can control? 1 2 3 4 5 6 7 Very often Seldom or never	5.56 1.41	b	b	a

comprehensibility would appear within the data. Structures within the data were explored by means of exploratory factor analysis using principal axis factoring with oblique rotation. Screeplots, Eigenvalues  $> 1$ , and Horn's parallel procedure (Allen & Hubbard, 1986) were used to assess the number of factors to extract. Also, a hierarchical cluster analysis applying Ward's method was used to identify homogenous groups of variables. Ward's method minimizes distances within groups while maximizing differences between groups and thus provides the best chance of identifying relevant clusters of items (Garson, 2010).

Secondly, face validity of the items was investigated based on 12 (six male, six female) face-to-face semi-structured interviews. Interviewees were living within the same geographical district as used for the survey. Six interviewees were aged 65 to 74 years, the others were 75 or older. Interviewees were asked to complete the OLQ-13 (Dutch translation as used in the survey) and were probed to elaborate on the meaning and relevance of items and their interpretation of the questions and answering scales. Transcripts were made verbatim. Data were analyzed for content in the response per item and the cognitive process of scoring. The discussion of results will focus on those items that are of interest to the overall aim of this paper.

Finally, results from both the explorative analyses and the qualitative analysis were used in the confirmative stage to test different structures using the confirmation dataset. Confirmatory factor analysis with full information maximum likelihood estimation (FIML) was used to estimate the models. FIML estimation yields consistent and efficient estimates when data are missing at random (Schumaker & Lomax, 2004). Fit indices  $\chi^2$ , CFI, and RMSEA were compared for each of the fitted models. Analyses were performed using PASW 17 software, and AMOS 17 software for the confirmatory factor analyses (<http://www.spss.com>). The analysis of the qualitative data was performed using Atlas ti. software (<http://www.atlasti.com/>).

## RESULTS

### Descriptives

Of the 1,361 included respondents, 43% were men and 57% women, with ages ranging from 65 to 101 (Mean=75, SD=6.8). Table 7.2 summarizes the descriptives for the OLQ-13 questionnaire in the present sample.

### Internal consistency and reliability

#### *Inter-item correlations*

Inter-item correlations are provided in table 7.3. All correlations were positive except for the negative correlations of item d with item b, and item d with item c after recoding of those items. The correlation between item c and b is remarkably high at  $r = .718$ .

**Table 7.2** Descriptives for the Orientation to Life Questionnaire OLQ-13 (n=1,361)

	Orientation to Life Questionnaire (13 items)	Meaningfulness (4 items)	Manageability (4 items)	Comprehensibility (5 items)
Mean Sum score	68	20	20	26
SD	10	3.8	4.3	4.8
Missing	248	177	151	200

**Table 7.3** Inter-item correlations Orientation to Life Questionnaire, OLQ-13 (n=1,361)

	a	b	c	d	e	f	g	h	i	j	k	l	m
<b>a</b>	1	-	-	-	-	-	-	-	-	-	-	-	-
<b>b</b>	.189	1	-	-	-	-	-	-	-	-	-	-	-
<b>c</b>	.184	.718	1	-	-	-	-	-	-	-	-	-	-
<b>d</b>	.089	-.112	-.079	1	-	-	-	-	-	-	-	-	-
<b>e</b>	.132	.176	.223	.154	1	-	-	-	-	-	-	-	-
<b>f</b>	.138	.109	.191	.224	.328	1	-	-	-	-	-	-	-
<b>g</b>	.219	.185	.209	.181	.157	.277	1	-	-	-	-	-	-
<b>h</b>	.151	.087	.121	.171	.278	.471	.277	1	-	-	-	-	-
<b>i</b>	.084	.152	.209	.148	.257	.403	.326	.572	1	-	-	-	-
<b>j</b>	.122	.263	.327	.083	.254	.248	.310	.271	.323	1	-	-	-
<b>k</b>	.132	.081	.143	.212	.200	.304	.112	.311	.262	.101	1	-	-
<b>l</b>	.242	.129	.181	.252	.238	.352	.392	.378	.390	.227	.263	1	-
<b>m</b>	.201	.169	.180	.176	.266	.442	.289	.527	.519	.288	.322	.436	1

### *Split-half reliability*

The correlation coefficient for halves 1a/b (see table 7.1) was  $r = .60$  with a reliability coefficient of .75. The equal division of theoretical dimensions over test halves (2a/b, table 7.1) gave a correlation coefficient of  $r = .68$  and a reliability coefficient of .80. When halves were composed data driven (3a/b, table 7.1), an  $r = .76$  and a reliability coefficient of .86 were obtained.

### *Cronbach's alpha*

The Cronbach's alpha for the OLQ-13 was .80. The dimensions scored lower, with the alpha for meaningfulness at .53; the alpha for manageability at .58; and the alpha for comprehensibility at .64. Deleting items resulted in marginal improvements, deleting item b from the comprehensibility dimension increased the alpha to .71.

## Validity

The high correlation of item b with item c, the improved Cronbach's alpha on deletion of item b, and the negative correlations of item d with both items, gave cause to delete both item b and item d, thus obtaining OLQ-11. Validity analyses were therefore performed on both the OLQ-13 and the OLQ-11.

### *Exploratory factor analysis*

In both the OLQ-13 and the OLQ-11, there was no unambiguous indication of the number of factors to extract. Examination of the screeplot indicated a one factor solution, whereas the Eigenvalues > 1 criterion and Horn's parallel procedure suggested a three factor solution. The pattern matrix for the three factor solution in both the OLQ-13 and the OLQ-11 is presented in table 7.4. The factor solution for the OLQ-13 was hard to interpret. The solution for the OLQ-11 seemed less ambiguous with regard to the theoretical dimensions of Sense of Coherence. Factor correlations between the three factors ranged from  $r = 1.8$  to  $r = .52$  in the OLQ-13, and  $r = .44$  to  $r = .45$  in the OLQ-11.

### *Cluster analysis*

Cluster analysis of the OLQ-13 resulted in a hard-to-interpret and messy structure in which the theoretical Sense of Coherence dimensions were not identifiable. Again, the OLQ-11 showed a more coherent picture with more resemblance to the theoretical dimensions.

**Table 7.4** Pattern matrix principal axis factoring, oblique rotation (n=703)

item	dim	Factor solution OLQ-13			Factor solution OLQ-11		
		1	2	3	1	2	3
a	ME	-	-	.408	-	-	.405
b	CO	-	.753	-	-	-	-
c	MA	-	.880	-	-.150	.669	-
d	ME	.128	-.223	.348	-	-	-
e	MA	.285	.198	.102	.160	.368	-
f	CO	.512	-	.163	.455	.165	.120
g	ME	.142	-	.409	.117	.126	.374
h	CO	.818	-	-	.850	-	-
i	CO	.787	-	-	.714	.101	-
j	MA	.363	.299	-	.139	.576	-
k	CO	.259	-	.327	.283	-	.266
l	ME	.109	-	.699	.167	-	.728
m	MA	.627	-	.182	.624	-	.206
Explained variance:		32% one factor / 42% three factor			35% one factor / 40% three factor		

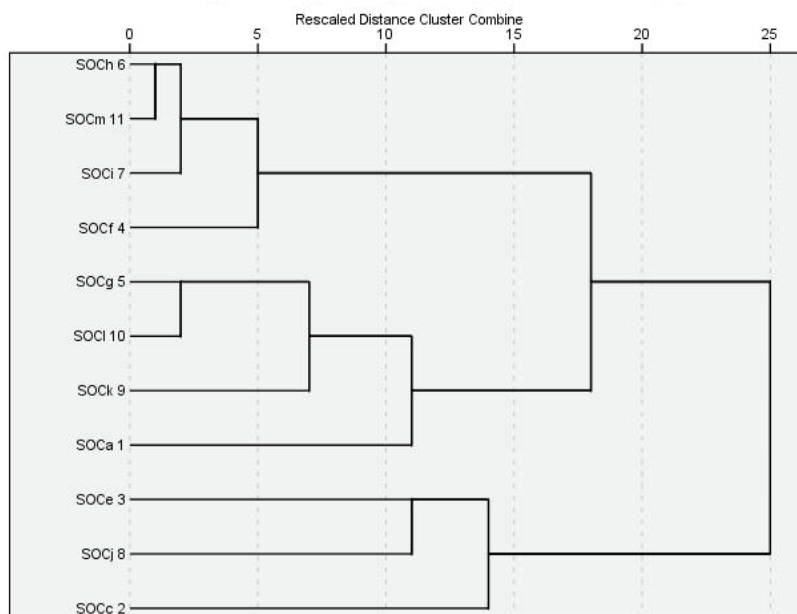
Values below .100 suppressed.

However, the strongest cluster was found between two items designed to represent manageability and comprehensibility. This is illustrated by the dendrogram in figure 7.1.

### *Item face validity*

Overall, interviewees encountered difficulties in answering and interpreting at least some of the questions in the OLQ-13. More specifically, item b) “Have you ever been surprised by the behavior of people you thought you knew well?” and item c) “Have people you counted on, disappointed you?” were frequently interpreted as addressing the same issue. Interviewees were missing the nuance, and the phrasing “surprised” in the question for item b was perceived in a negative connotation, as a disappointment. When probed, interviewees perceived item c as relating to the manageability dimension. Item b, however, was not perceived by the interviewees as relating to any of the theoretical dimensions.

Item d) “Until now your life has had: No clear goals or purposes at all ... Very clear goals or purposes” was perceived as referring to the future. Interviewees related these future goals to the context of occupation and work, and therefore did not think it was applicable to aging individuals who had already retired. When probed, interviewees related this item to the meaningfulness dimension.



**Figure 7.1** Dendrogram cluster analysis without item b and item d (n=703).

With regard to item k) “When something happens, do you in your opinion usually: Over- or underestimated its importance ... See things in the right proportion,” interviewees struggled to answer the question. This item was regarded as difficult, unclear, and too broad. Interviewees had no clear view about the dimension to which this item relates.

Item m) “How often do you have feelings that you’re not sure you can control?” was perceived as relating to negative emotions. Interviewees mentioned: anger, loneliness, tensions, and reluctance, and the degree of control over these emotions. This item was perceived to relate to the comprehensibility dimension.

### **Confirmatory factor analysis**

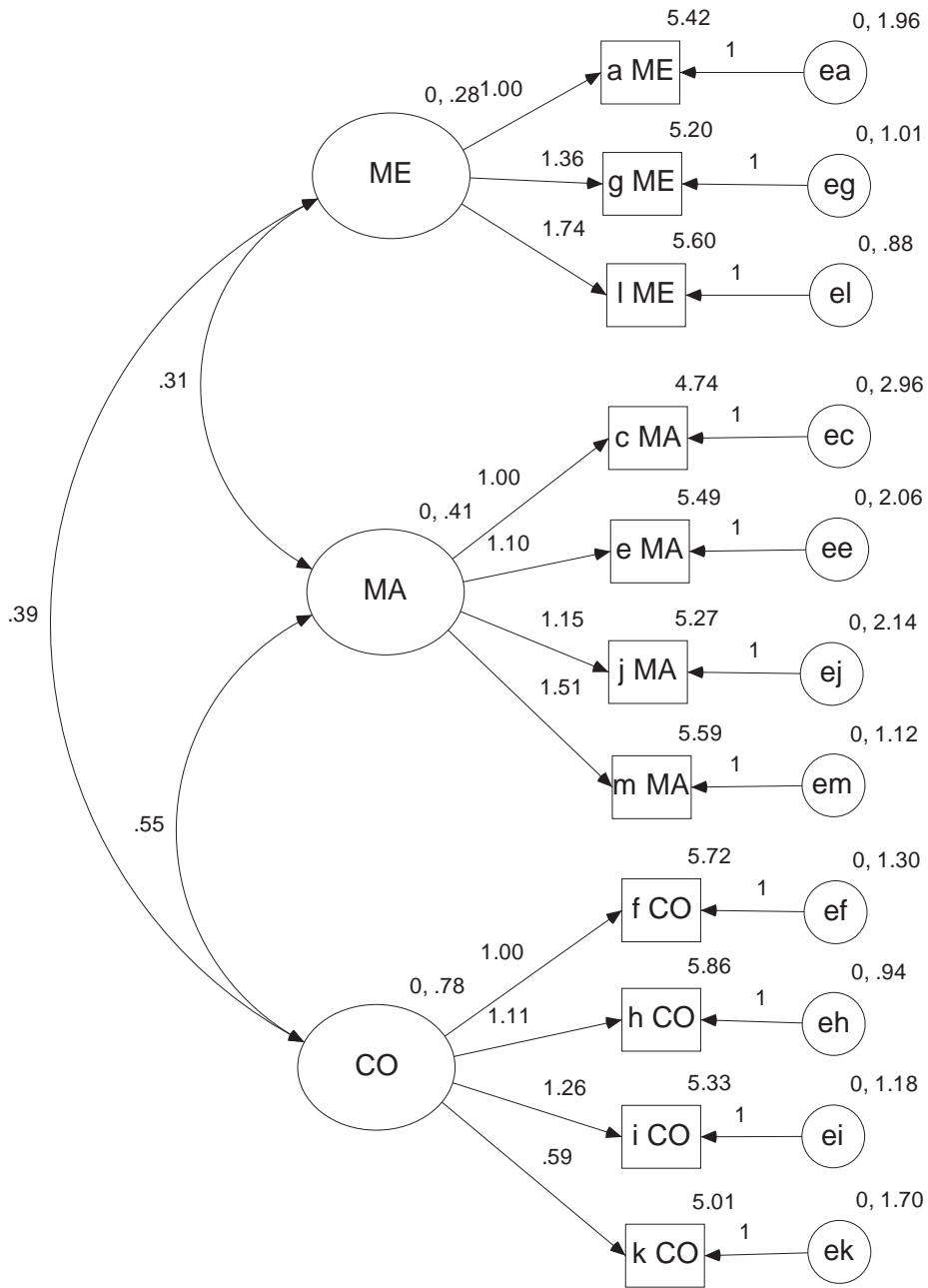
Confirmatory factor analysis was performed on both OLQ-13 and OLQ-11 using the confirmation set. A one factor model connecting the items directly to one factor, Sense of Coherence, was tested, followed by a first order model in which the three dimensions were included. The fit indices for the tested models: Chi<sup>2</sup>, RMSEA, and GFI, as well as the factor Sense of Coherence and dimension variances, are provided in table 7.5.

The Chi<sup>2</sup> values in all models were highly significant due to over sensitivity to the large sample size. The unique factor variances in all models are up to ten times larger than the factor Sense of Coherence or the dimension’s variances, respectively. The OLQ-13 first order model failed to run properly because the covariance matrix was not positive definite, and a Chi<sup>2</sup> could not be computed. For both the OLQ-13 and the OLQ-11, the second order model construction resulted in a model that was mathematically equivalent to the one factor models and therefore is not included in table 7.5.

Compared to the one factor Sense of Coherence model, the first order model yielded better fit indices. Overall, the OLQ-11 models performed better than the OLQ-13 models. The path diagram and parameters for the best fitting first order OLQ-11 model is provided in figure 7.2.

**Table 7.5** CFA fit indices and variance (n=658)

	Df	Chi <sup>2</sup>	CFI	RMSEA	Var. SOC				Range error var.
OLQ-13 one factor model	65	618	.731	.114	.22				1.01 to 3.00
OLQ-11 one factor model	44	142	.930	.058	.21				.99 to 2.96
						<i>Var. ME</i>	<i>Var. MA</i>	<i>Var. CO</i>	
<b>OLQ-13 first order model</b>	<b>na</b>	<b>na</b>	<b>.723</b>	<b>.115</b>	<b>.28</b>	<b>.48</b>	<b>.75</b>	<b>.87 to 2.92</b>	
OLQ-11 first order model	41	123	.941	.055	.28	.41	.77	.88 to 2.95	



**Figure 7.2** Path diagram 11-item first order confirmatory factor analysis model (n=658).

## DISCUSSION

The reliability and the validity of the OLQ-13 in this population of non-institutionalized individuals aged 65 years and older was ambiguous, at least partly due to the poor performance of item b and item d. This problem has been reported before and seems to be resolved, at least partly, by excluding the items b and d from the analysis (Hittner, 2007). The psychometric properties of the OLQ-11 (obtained by deleting the two items) were indeed better, in particular the exploratory factor solution. Where the underlying theoretical constructs could not be linked to the exploratory analyses of OLQ-13, this was to some extent possible in OLQ-11 with problems remaining due to item k and item m.

The superior validity of OLQ-11 over OLQ-13 was supported by the better model fit in the confirmatory factor analysis. It is important, however, to acknowledge the relatively large unique factor variances in the model, suggesting substantial “noise.”

The reported high correlation between item b and item c has also been found in other studies (Feldt et al., 2000; Bernabé et al., 2009; Hittner, 2007) and could be explained in the present study by interviewees perceiving these questions as similar.

The present study confirmed the multi-dimensional nature of SOC in the aging population, previously shown for other populations (Eriksson, Lindström, & Lilja, 2007; Feldt et al., 2000; Frenz et al., 1993; Gana, 2001). Whether to view Sense of Coherence as a one factor model or a three factor model has often been debated in the literature (Feldt et al., 2000; Antonovsky, 1993; Flannery, Perry, Penk, & Flannery, 1994; Frenz et al., 1993; Gana, 2001; Sandell et al., 1998; Muller & Rothman, 2009). This study therefore applied several criteria to extracting factors in the exploratory analyses, eventually suggesting a three factor model. Moreover, both the three factor and one factor solution were further tested in confirmatory analysis.

The present study focused on the reliability and the construct and face validity of the OLQ-13 among community-dwelling older individuals and suggested the OLQ-11. It did not look into the divergent validity by investigating whether SOC appears as a salutogenic construct distinct from quality of life and (absence of) depression. That this may be an issue was shown in a study on girls aged 14 to 18 years (Blom, Serlachius, Larsson, Theorell, & Ingvar, 2010). Blom et al. (2010) concluded that symptoms of anxiety and depression were better captured in the OLQ-29 than in the specialized scales they considered. It would be interesting to investigate whether similar issues arise in clinical and non-clinical groups of older individuals.

The OLQ-13 has been translated and used in many countries and in different populations. Generally speaking, translation of scales and questionnaires requires explicit attention since translation may influence validity (Harkness et al., 2010). No published information is available on translation difficulties and resulting (lack of) equivalence of the OLQ-13 in Dutch.

This study is unique in its mixed-method approach to the study of OLQ: it combines qualitative and quantitative approaches/data. The added value of this combination lies



in the quantitative part providing enough data to work with a separate construction and validation set, and the qualitative part providing the detailed in-depth information necessary to understand what made particular items problematic for members of this population. The qualitative part gave the context that allowed for a better understanding of problems that presented themselves in individual items. Since the data for the qualitative part were collected before the quantitative analyses, they can be regarded as independent: neither the quantitative nor the qualitative data collection was influenced by previous results.

Interpretation of the Cronbach's alpha scores is problematic since these alpha scores are influenced by the number of items tested, which were higher for the scale as a whole and the comprehensibility dimension. This problem is illustrated by Olsson, Gassne, & Hansson (2009) in a study comparing OLQ-29 and OLQ-13, showing higher values for the OLQ-29. This study therefore also used split-half and inter-item correlations to assess reliability.

## CONCLUSION

The present mixed-method study suggests the proposed OLQ-11 as more suitable than the OLQ-13 in this population of aging individuals. In addition, this study illustrates that the validity and reliability of OLQ-13 may differ substantially for different populations.

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# Chapter 8 General discussion and conclusion



## GENERAL DISCUSSION

Many different stakeholders and contextual factors influence the success or failure of health promotion activities. Conventional approaches and evaluation designs underlying health promotion interventions often explicitly exclude contextual variables by controlling them (Green, 2006). In doing so, a lot of information about why an intervention was successful or failed to achieve success remains invisible and “black boxed” (de Savigny & Adam, 2009). In addition, in health promotion practice, control over contextual variables often is not possible, and single risk factor approaches do not match the holistic nature of health (Koelen, Vaandrager, & Colomer, 2001). A systems thinking approach acknowledges complexity and takes into account inputs, throughputs, and outputs, shifting away from a reductionist focus on single risk factors and linear causality.

The main objective of this thesis was to appreciate the complex environment in which health promotion takes place by applying a systems thinking perspective to healthy aging. The three parts within this thesis explored 1) a systems thinking approach to health promotion, 2) the application of systems thinking to healthy aging at the local level, and 3) the operationalization of new insights in health promotion practice. The main part of this thesis was situated within the healthy aging program of the academic collaborative AGORA (appendix I). This section first addresses the main findings for each part of this thesis, as summarized in figure 8.1, followed by a general discussion.

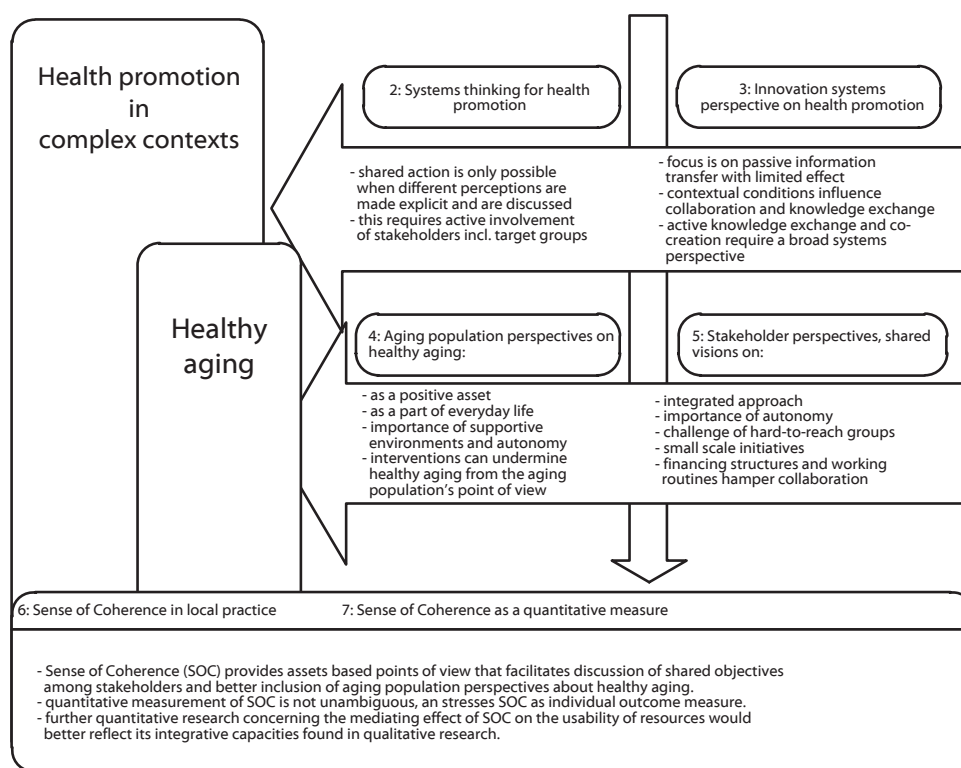
### Part I

#### *Explore and adapt a systems thinking approach to health promotion*

Systems thinking is increasingly receiving attention in health promotion research and literature. However, the actual application of systems thinking in health promotion practice remains underdeveloped. Chapter 2 therefore explored practical applications of systems thinking in other fields such as agricultural extension studies, development studies, and organizational studies. Insights were then applied to the AGORA project itself.

It was found that systems thinking in practice includes perspectives of different stakeholders on issues in order to gain a broad picture on possible improvements. Contextual conditions, such as resources available to stakeholders and the basis for decisions about what stakeholders to involve, are made explicit. Researchers, supervisors, and consultants collaborating in the AGORA healthy aging project were interviewed. Topics addressed included: how healthy aging should be defined, what activities should be developed at the local level, and expectations about the project and desired deliverables.

Results showed how the AGORA project started under the assumption of a shared vision on healthy aging. After a while though, discussions and disagreements started to hamper collaboration. The interviews provided insight into how involved epidemiologists and social scientists had different working routines and research approaches, such as



**Figure 8.1** Summary of main findings related to chapters.

experimental designs and action research. This also influenced perceptions on who should be involved at the local level and whether aging persons themselves should become active participants in the development of possible projects or interventions.

The interactive discussions about these outcomes explicated differences, after which they could be worked out. This facilitated a shared learning process, but not all differences could be overcome. The result was an agree-to-disagree situation from which researchers could continue to find a way to combine points of view in the further development of the project. In this case, explicating difference in approaches and working routines helped involved researchers to better appreciate differences, and this facilitated the collaboration within the project.

In health promotion at the national level, there exists a concern about the fact that research-based knowledge and evidence-based interventions are under-utilized in health promotion practice, the so-called *know-do gap*. The aim of the study presented in chapter 3 was to gain insight into issues and mechanisms underlying this gap. A study applying a systems thinking approach, in which stakeholder views and contextual factors played a central role, was conducted. This study was performed at the national level, outside the AGORA infrastructure.

Building on insights described in chapter 2, this study applied an *innovation systems failures matrix* that assesses factors that determine a systems functioning. This matrix facilitated the analysis of different stakeholder perceptions originating from 33 interviews. The application of this matrix resulted in the identification of problems experienced, interrelatedness between problems, and underlying mechanisms.

The main finding of this study indicated that passive dissemination of research-based knowledge, for instance by means of reports, presentations, and publications, is not enough to facilitate the use of knowledge in practice. Furthermore, contextual factors, such as unclear role divisions, a lack of incentive to co-create, competition for funding, the exclusion of experience-based knowledge, and a lack of capacity in health promotion practice to influence the research agenda, were found to hamper knowledge exchange and use. Interviewees advocated active co-creation of knowledge, in which practice-based knowledge is utilized, as essential to increase the use of knowledge in practice. Knowledge brokers predominantly translate scientific knowledge into ready-made innovations in the form of reports, databases, and websites rather than actively stimulating interaction and co-creation. Effective knowledge brokering therefore requires a broader analytical systemic perspective.

### ***The contribution of systems thinking to strengthening health promotion.***

Using systems thinking in health promotion means paying attention to interactions, and facilitating learning and co-creation. Debating different perspectives stimulates the creation of a common ground between actors. This helps to create sustainable projects, offers the opportunity to re-define the problem, and facilitates the co-creation of innovative solutions that are meaningful to those involved. In addition, the focus on contextual factors provides insight into the “black box” of projects and thus helps to explain success or failure. Pre-conditions for success can be identified, resulting in more feasible approaches.

Overall, Part I of this thesis concludes that a systems thinking approach can strengthen health promotion by 1) including diverse stakeholder perspectives, 2) explicitly addressing contextual factors, and 3) co-creating solutions with all involved.

## **Part II**

### ***Apply a systems perspective to healthy aging by assessing different stakeholder perceptions on healthy aging strategies at the local level***

Following the main conclusions drawn in Part I of this thesis, Part II addresses the application of systems thinking at the local level. To do so, local stakeholders were interviewed about their perceptions concerning healthy aging and current healthy aging activities within their municipality. Three municipalities collaborating with AGORA participated in this study. In each municipality, local organizations, policymakers, and aging inhabitants were interviewed.



Chapter 4 described the results from 79 open interviews with aging individuals. The main findings show how aging is experienced as an integral and positive part of daily life. Since many facilities and interventions tend to emphasize negative consequences of aging by addressing isolated health risks, these do not match well with this daily life perception. As a result, interviewees recognize the importance of facilities and provisions but do not want to relate to them in terms of usability by themselves.

Chapter 5 addressed local professionals and policymakers' perspectives. Interviews with 44 stakeholders were analyzed, and a framework was used to compare the three different municipal settings. On the basis of stakeholders' experiences, working routines and financing structures were found to support an isolated risk factor approach in practice. Collaborative efforts, although valued by interviewees, were hampered by this. Familiarity between organizations was found to support collaboration. The municipality that actively stimulated familiarity between organizations by organizing network meetings succeeded in reaching better collaboration between organizations. The three municipalities did not differ largely in terms of geographical location and priorities for healthy aging (as defined by the senior inhabitant survey of the community health services). However, contextual factors such as familiarity among local organizations were not always present. This advocates against the implementation of ready-made interventions in the same way for each municipality.

The study design in both chapter 4 and chapter 5 facilitated comparisons between aging individuals and professionals' perspectives on healthy aging. Both studies were synchronized by the use of the same props during the interviews, being: health themes identified in the senior inhabitant survey by the community health services, and local newspaper clippings concerning healthy aging facilities (see appendix II). Comparing both studies revealed several similar issues:

- Aging individuals perceive healthy aging as part of everyday life. In line with this, professionals and policymakers indicate that health-related issues are strongly interrelated and should be approached in an integrated way. However, working routines and financing structures hamper this.
- Resources within the vicinity, like for instance a local supermarket and good contact with neighbors, are important contributions to supportive environments as experienced by aging people. Professionals confirm the importance of involving the social network of aging individuals. Professionals and policymakers express the need for local stakeholders to collaborate in order to increase visibility among the target group. Also, new initiatives are experienced as more successful when they are introduced locally and on a small scale since these are more easily adapted to the specific context. Current trends in policy and retail, however, tend to scale up and centralize services and thereby decrease local support.

- A feeling of being in control was found to be important to aging individuals. Being connected to society and the local social environment as well as active participation in resolving challenges were mentioned in this regard. Interviewed stakeholders stressed the need to tailor the implementation and communication of facilities to the demands of older people in order to increase empowerment and reach among the intended audience. Strategies such as personal contact and challenging people to participate were experienced as contributing to such approaches. The findings from the interviews with aging individuals indicate that facilities are perceived to be presented in a way that overly stresses age and health risks, focuses on negative consequences of aging, and thereby reduces the feeling of being in control.

### ***The contribution of different stakeholders' perspectives to healthy aging strategies at the local level***

There is a discrepancy between the way interviewees experience healthy aging as an integral part of everyday life and the way services and interventions are presented with a focus on isolated health themes. It can be concluded that an assets-based approach matches aging individuals' experiences better than a deficit approach. Furthermore, a more positive framing of facilities and provisions as well as special attention for local resources came to the fore as opportunities to improve local healthy aging strategies. To increase the reach of interventions, they need to be perceived as meaningful. Communication about facilities and interventions often focuses on their benefits in relation to a specific health issue, for instance prevention of falling incidents or loneliness reduction. In doing so, the actual content of an activity is not made explicit. Interviewees indicated the need for much more information in order to decide whether or not they would like to participate. Experiences shared with familiar faces and personal invitations were the best way to encourage enthusiasm about participating.

Furthermore, it can be concluded that collaboration between organizations cannot be taken for granted and requires attention in project plans. Although other studies do conclude that collaboration is necessary, they often fail to provide more insight into how this could be achieved in practice. This study was able to provide additional information by including stakeholder experiences and perspectives. The findings show how facilitation of familiarity between organizations is a prerequisite. Also, although organizations often work from a specific, specialized health theme, they do encounter similar problems such as how to reach so-called hard-to-reach groups.

A common ground that moves away from health risk towards shared issues could support local stakeholders in achieving the desired collaboration.

Overall, Part II of this thesis concludes that there is a discrepancy between the way aging individuals experience healthy aging as an integral part of everyday life and the way services and interventions are presented with a focus on isolated health themes. In some cases, this evokes negative feeling of powerlessness. As a result, interventions that aim to

support the aging population eventually undermine healthy aging from the target groups' point of view. Local professionals experience this gap between facility use and presentation from a different perspective since their concern about hard-to-reach groups relates to the same issue. In addition, local professionals share a common view on objectives that moved from *what* issues to address (health themes) towards the process of *how* to do so. Findings from the interviews with aging individuals provided ample information relating to this how question, such as: prevent isolation from the context of daily life and prevent a focus on the negative aspects of aging. Since organizations work from specific health-related aims and objectives, a common ground to discuss shared visions is required.

## Part III

### *Further operationalize new insights into health promotion practice*

The identification of different perspectives through interviews by itself does not facilitate the use of these results. The operationalization of systems thinking in health promotion therefore can benefit from learning experiences with application in practice. To do so, the findings from Part II were discussed in interactive presentations and workshop formats in participating municipalities. Professionals as well as older inhabitants were invited to these meetings to co-create follow-up steps. The AGORA project led by Jeanette Lezwijn (see appendix I) guided these local processes by means of action research. In this way, feedback from local practice shaped Part III of this thesis and provided insight into the contribution of a systems thinking approach in practice.

As stated in the discussion on Part II, a common ground that facilitates the debate about *how* to improve healthy aging, like for instance how to address hard-to-reach groups, is required. Chapter 6 described the development of the HP 2.0 framework and how this framework provides such a common ground. Discussions about the findings from Part II concluded that this framework should adopt an assets-based approach to match aging individuals' perceptions. The assets-based theory, Salutogenesis, which addresses what constitutes health as opposed to what causes disease, was therefore included in the framework by means of the Sense of Coherence concept. This concept addresses the extent to which older people feel able to use available resources. Sense of Coherence encompasses three different dimensions, being: 1) *manageability*, 2) *comprehensibility*, and 3) *meaningfulness*. Since these dimensions do not address a specific health issue, they can be used to discuss shared visions on how to improve health aging, such as how to improve the reach of facilities. Furthermore, the framework suggests that the development, implementation, and evaluation of health promotion activities should broaden its view beyond a focus on interventions and health outcomes to include different perceptions and contextual factors, operationalized by the Sense of Coherence concept.

Following the HP 2.0 framework, epidemiological data from the community health services (*what* issues are important to address) were complemented with insights from discussions and interviews (*how* to address issues in practice). The consequent discussions resulted in an explicit formulation of what key point to include in follow-up steps, being: 1) use a positive approach to healthy aging, 2) create a supportive environment in which neighbors play an active role, 3) increase visibility of facilities, 4) actively involve older people in their own situation. Finally, these key points were integrated in the development of the Neighbors Connected project that aims to increase social engagement and by doing so decrease loneliness. Another aim is to create greater awareness of available facilities for healthy aging. In this project, socially active older people are *invited* to organize an activity and *invite* less socially active older people in their neighborhood to participate. Examples of activities organized include: a mobility scooter tour, making Christmas cards, and going to the theatre together. The initiators are responsible for inviting participants. AGORA and involved local stakeholders facilitate these activities with practical and financial support.

The project resulted in 11 organized activities between May 2009 and May 2010, after which local stakeholders continued the project with an additional eight activities between September 2010 and December 2010. The evaluation of whether inviting people to locally organized activities works as a strategy to increase awareness, to increase reach among hard-to-reach groups, and to increase social engagement, is still in progress. The results described in Part II of this thesis underline the theoretical possibility of doing so.

### ***Quantitative assessment of Sense of Coherence***

Sense of Coherence (SOC) and its dimensions – meaningfulness, manageability, and comprehensibility – were identified as promising concepts to operationalize systems approaches in health promotion practice. It was therefore expected that quantitative measurement of SOC could provide useful information for both the development and evaluation of health promotion projects.

Chapter 7 described the assessment of the Orientation to Life Questionnaire (OLQ) that measures an individual's SOC. The results from the psychometric assessments indicate difficulties with the use of this scale in aging populations. Deleting two items from the original 13 items improved the functioning of OLQ.

The HP 2.0 framework described in chapter 6 models relations between resources, health outcomes, and Sense of Coherence. In the scientific literature, a positive relation between a strong Sense of Coherence and perceived health has already been established (Eriksson, 2007; Lindström & Eriksson, 2010). This way of addressing SOC, however, puts emphasis on an individual's SOC level and frames SOC as an individual outcome measure. Many constructs relate closely to SOC as an individual outcome measure and might act less ambiguously as a scale construct from a psychometric point of view. Examples include: health literacy, coping, self-efficacy, empowerment, and resilience. Also, many of these

constructs are used more frequently for evaluation purposes and often comprise smaller and more easily applicable questionnaires.

The relation between resources and health described in the HP 2.0 model is frequently addressed in evaluation designs of interventions but often fails to gain insight into underlying factors and processes (Koelen et al., 2001; Bowling, 2005). The described *salutogenic* relation between resources and SOC has not been investigated before. The rationale within the framework as described in chapter 6 elaborates on opportunities for this relation to provide insight into such underlying processes.

The salutogenic theory states that resources such as housing, finances, facilities, experiences, and self-esteem are prerequisites for the development of SOC. At the same time, the key is not in having resources available, but in the ability to use them in a health promoting way. A strong SOC is seen as key in this; people with a strong SOC are confident about using available resources in a health promoting way. Overall, resources shape SOC, and SOC can be seen to mediate the use of available resources. This interrelatedness makes it challenging to assess the mediating effect in a quantitative way. The assessment of the psychometric properties of the OLQ scale in this thesis provides a starting point from which to further investigate the relations as modeled in the HP 2.0 framework.

Overall, Part III concludes that salutogenesis as an assets-based theory and the related Sense of Coherence concept provide promising ways to operationalize systems thinking in health promotion practice. The qualitative use of SOC in the development of the HP 2.0 framework and Neighbors Connected facilitated discussions and the development of both. However, in order to use quantitative measurement of SOC in a broader way than as an outcome measure alone, further quantitative assessments are required.

## **General discussion: Health promotion principles from a systems thinking perspective**

The definition of health promotion as stated in the introductory chapter of this thesis stressed the importance of system-wide change. The principles for health promotion: 1) empowerment, 2) participation, 3) holistic view of health, 4) intersectoral collaboration, 5) equity in health, 6) sustainability, and 7) use of multi-strategies, consequently provide guidelines on how to reach this goal in practice (Rootman et al., 2001; World Health Organization, 1998).

It should be noted that none of the health promotion principles addresses specific health-related aims or determinants; their focus is on best practice for the organization of health promotion. In this light, systems thinking approaches are a natural fit to the aims and organization of health promotion. In practice however, such approaches are not that easy to adopt, nor are they always an obvious choice. On the basis of the findings and experiences within this thesis, the health promotion principles can be elaborated on from a systems perspective. This provides new insight for their application in practice.

***Empowerment: Sense of Coherence, confidence, and control***

In health promotion, the process of empowerment aims to let people gain greater control over decisions and actions influencing their health (World Health Organization, 1998). Chapter 4 showed how an emphasis on negative consequences of aging and health risks was found to negatively influence the feeling of being in control. Salutogenesis and its key concepts, Sense of Coherence and Generalized Resistance Resources, offer an assets-based approach and therefore can contribute to empowerment.

Examples relating to the Sense of Coherence concept and its dimensions found in this thesis are: resources in the vicinity (i.e. neighbors, local shops) are perceived as more accessible; this relates to manageability. The mismatch between the way facilities are communicated and the way target groups perceive them relates to comprehensibility. Communication that explicates the actual content of activities over and above their use in relation to a specific health determinant, and personal communication like the invitations integrated in the Neighbors Connected intervention, are examples of best practices relating to comprehensibility. Finally, the way aging individuals experience healthy aging as part of everyday life relates to meaningfulness.

Facilities that address health issues in isolation from this everyday-life context risk not being recognized as meaningful. They may evoke negative feelings relating to aging and helplessness and thereby decrease the feeling of being in control which is strongly related to empowerment. Working with an assets-based approach leads to a more positive framing and prevents negative perceptions.

Salutogenesis as an assets-based approach describes the key concept SOC as the ability to view life as coherent, comprehensible, manageable, and meaningful. This gives people the confidence to identify resources and the ability to use these resources in a health promoting way. It is not seen as a coping strategy or a personal trait but as a coping resource that gives the ability to manage life events (Lindström & Eriksson, 2010).

The second key concept in salutogenesis, Generalized Resistance Resources (GRRs), can be found within a person as bound to their personal capacity but can also be found in their environment. GRRs can be material, like housing, finances, and facilities, or non-material such as self-esteem, social relations, and beliefs. Facilities and activities in the environment, like for instance health promotion interventions, can be viewed as resources as well. GRRs are prerequisites for the development of Sense of Coherence. At the same time, as already mentioned, having resources available is not the most important factor; rather, individuals must have the ability to use them in a health promoting way.

The salutogenic relationship between resources and SOC as described in chapter 6 encompasses the mediation effect that arises because GRRs shape SOC and SOC mediates the use of available resources. In this case, the dimensions of SOC facilitate better adjustment of resources to different levels of SOC in the target population.

According to the HP 2.0 framework, addressing comprehensibility, manageability, and meaningfulness in the process of co-creating projects increases the chance that participants will use the resource. To improve existing facilities, as suggested by stakeholders participating in Part II, these dimensions can be assessed in order to identify opportunities for improvement and increase their usability by target groups. Operationalizing these dimensions in the evaluation of interventions facilitates the visibility of intermediate outcomes and stakeholders' contributions to a project.

### **Participation**

Participation is found to be essential to the sustainability of health promotion (World Health Organization, 1998). Community and target group participation refers to the involvement of community members in the identification of needs, priority setting, and the development of strategies (Koelen & van den Ban, 2004; Wagemakers, 2010). In practice however, participation especially tends to be mentioned in a lot in project plans but is only marginally applied in practice. Often, the involvement of target groups is merely consultative through methods like interviews or focus groups and falls short of ensuring influence on processes (Caron-Flinterman et al., 2006). The lack of facilitating and evaluating instruments for participation plays a role in this (Wagemakers, 2010). This demands specific competencies in health promotion professionals (Saan & de Haes, 2005) and a shift from top-down towards more bottom-up approaches that create space for active participation (Wagemakers, 2010).

Using systems thinking approaches literally builds from different stakeholder perspectives and inputs. This thesis shows that it is critical how boundaries are set and who defines what stakeholders need to be involved. The way practice is defined in the research–policy–practice triangle influences participation and boundaries. This thesis shows that whether *practice* is defined as local professionals, or as local policymakers, or as the community health services determines who gets to be involved in a project. Furthermore, older people themselves are not included in the triangle model, unless they are specifically mentioned within the *practice* section of this model. In current health promotion, *research* (knowledge institutes) mostly defines health risks and legitimate interventions according to evidence-based standards (Horstman, 2010), but innovations can originate from practice as well as from research. This thesis has made clear that such a focus on scientific evidence alone overlooks opportunities arising from practical experiences and different stakeholder perspectives.

In the case of Neighbors Connected, the results from the senior inhabitant survey pointed towards an increasing prevalence of loneliness amongst the aging population. Policymakers as well as researchers therefore advocated loneliness prevention activities. The active involvement of aging individuals through interviews and workshops, however, completed the picture. Their perspectives for instance highlighted the importance of

local resources, the importance of feeling engaged in society, and the way risk factor-oriented approaches evoke negative feelings. These insights together created a rich and comprehensive picture of the local context from which relevant and meaningful activities were developed.

### ***Holistic approach: importance of context***

Most health promotion interventions nowadays systematically address individual determinants as well as the social and physical environment. However, this does not necessarily lead to a holistic approach because a focus on risk factors and isolated, pre-defined outcomes still overlooks interactions and contextual factors. Accountability towards grant providers and other financing stakeholders is based on these pre-defined outcomes, and project plans are constructed this way in order to receive grants (Laverack, 2005). This means that, for evaluation purposes, many influences and variables get “black boxed,” limiting insight into the success or failure of interventions (Green, 2006).

This thesis has shown how the importance of context and the continuing changes within local contexts (induced by policy or other changes in the environment) caution against the implementation of ready-made interventions. Currently however, Dutch policy aims to generate a database of evidence-based interventions to be used and implemented where needed. Chapter 3 addressed systems failures relating to this approach by stressing the importance of contextual pre-conditions such as achieving shared visions, facilitating institutional change, and removing financial and infrastructural barriers to the implementation of such interventions.

The facilitation of such processes that allow co-creation and insight into contextual factors requires a substantial time investment. For instance, this thesis used extensive interviews and elaborate analysis of qualitative data. In practice however, time is limited and using time-consuming methods is often not favored. The developed HP 2.0 framework and existing systems thinking approaches such as soft system methodologies (Checkland, 2000), facilitation of multi-actor learning (Groot, 2002), and action-oriented approaches (Engel, 1995; Wagemakers, 2010) offer methods to support collaborative efforts with a less time-consuming and more pragmatic approach.

To appreciate diverse stakeholder perspectives and experiences, project aims can no longer be defined before the project starts. The collaborative definition of aims and objectives is an essential part of the project, and practical application in this thesis has underlined how this facilitates shared learning and co-creation. Project plans and grant proposals will have to provide room for such approaches and allow for alternate ways of planning (Lezwijn, Naaldenberg, Vaandrager, & van Woerkum, 2011; see chapter 6; Leeuwis & van den Ban, 2004), or, as stated in the introductory chapter of this thesis, change from talking about complex interventions to talking about interventions in complex environments.



### ***Intersectoral collaboration: lack of pre-conditions***

From a systems perspective, intersectoral collaboration relates strongly to participation since it refers to the participation of different sectors in health promotion. Just as is the case of participation, intersectoral collaboration is frequently mentioned and emphasized in project plans, but its actual execution in practice remains marginal, as well as accountability for collaboration in evaluation reports (Wagemakers, 2010; Wagemakers, Koelen, Lezwijn, & Vaandrager, 2010; Koelen et al., 2001; Koelen, Vaandrager, & Wagemakers, 2008).

This thesis indicates several innovation systems failures and lack of pre-conditions necessary to achieve collaborative approaches. At the local level, stakeholders did have a shared vision on how to improve healthy aging that was much in line with the health promotion principles. However, contextual influences and institutional constraints such as financing structures and working routines hampered collaboration and induced competition as illustrated in chapter 5. Similar constraints were found concerning the sharing and utilization of knowledge at the national level in chapter 3.

Chapter 5 applied six factors for coordinated action in order to compare three municipal settings, being: 1) discussing aims and objectives, 2) representation of relevant stakeholders, 3) discussing roles and responsibilities, 4) communication infrastructures, 5) visibility of contributions and results, and 6) management. These can also be used to facilitate the inclusion of outcomes relating to collaboration in project plans and evaluation (Koelen et al., 2008; Wagemakers, 2010). The focus then shifts from accountability for what health issue was addressed towards how the process of addressing an issue was organized.

### ***Equity: hard-to-reach groups***

An equal distribution of health and opportunities for well-being are a main concern for health promotion. Equity in this sense often refers to global issues and it encompasses equity within and between populations (World Health Organization, 1998). Previously addressed principles like empowerment and participation are strongly linked to equity.

Local professionals interviewed in Part II of this thesis worried whether facilities they offer are actually being used by the groups that they are trying to reach. A main concern in this is that participants in programs often seem to be able to manage life very well. The number of participating so-called hard-to-reach frail elderly is only marginal. Aging persons participating in the discussions preceding the development of Neighbors Connected also voiced their concerns about this group since these people were not likely to participate in such discussions. This problem of hard-to-reach groups is relevant to health promotion on other subjects as well. Discussing this issue with stakeholders and members of the aging population resulted in special attention to removing barriers to participation in Neighbors Connected, for instance by the concept of socially active older people inviting others to participate and by the local scope of the project.

This thesis has also indicated how SOC can contribute to a better insight into equity. When SOC is seen as a measure of capability to use resources in a health promoting way, this implicates people with a weaker SOC having a harder time identifying and using resources than people with a strong SOC. The spread in SOC level in the aging population as presented in chapter 7 illustrates the variety in SOC level. Resources such as interventions and facilities, however, do not take these differences into account, and they communicate to people with high or low SOC levels in the same way. It may very well be the case that individuals with a strong SOC are consequently less frail and better able to identify and use these resources, underlining the concern about hard-to-reach groups voiced by local stakeholders.

### ***Sustainability: funding***

The fact that many projects and interventions are financed externally is a main problem for sustainability in health promotion. Once initial funding stops, many projects fail to continue (Rootman et al., 2001). The long time it takes to make results at the health outcome level visible, and a lack of local support to continue projects the results of which are not yet visible, play a role in this (Koelen et al., 2008; Saan & de Haes, 2005; Wagemakers, 2010).

Systems thinking stresses the importance of including different perspectives on aims, objectives, and intermediate outcomes. Changes that are both meaningful and relevant have a good chance of being sustainable (Checkland, 2000). The HP 2.0 framework helps to explicate intermediate outcomes since both health level outcomes and intermediate outcomes can be discussed and integrated. A pre-defined health problem (for instance loneliness among aging populations) as a starting point for these discussions limits the contribution of organizations who do not specifically aim at this problem. An assets-based approach, such as offered by the HP 2.0 framework, aiming at the complex context (improve local resources) facilitates different stakeholders to contribute to the discussion.

The co-creation of Neighbors Connected, in which different perspectives were appreciated and integrated, resulted in a project that stakeholders perceived as meaningful and relevant, thus increasing the chances of sustainability. The sustainability of Neighbors Connected is illustrated by stakeholder attempts to continue the project after the initial AGORA funding was stopped, for instance by finding new financial resources.

To be truly sustainable, chapter 3 showed how identified *innovation system failures* such as financing structures, working routines, and evaluation approaches need to be addressed from a policy level as well. Responsibilities cannot be diverted to local professionals. All kinds of actors need to be linked to enable co-creation of knowledge and projects. This requires a long-term view and integrated policy.

### ***Multi-strategy: the role of a systems integrator***

In health promotion, multi-strategy refers to the combined use of policy development, organizational change, community development, legislation, advocacy, education, and communication. Although systems thinking advocates system-wide changes that include all these strategies, it is something different to actually achieve this in the daily practice of health promotion.

This is illustrated by the recent *Regional public health report* (Boluijt et al., 2010) for the Gelre-IJssel region, which provides municipalities with information on the health status and pressing health issues for the general population in this region. In addition, it informs municipalities about possible interventions, and it makes some recommendations for local public health policy development, including:

- more attention for preventive activities
- make use of evidence-based interventions
- use integrated public health policy
- more attention for frail groups in society
- better collaboration between first line care and local public health policy
- improve networks between local municipalities

These recommendations are in line with the health promotion principles and with a systems perspective on health promotion. The merit of these recommendations is not questioned, and they are valued by all involved. However, by themselves they fail to indicate how to act accordingly in practice. Moreover, when such recommendations, or health promotion principles, are proposed, they need to be accounted for in evaluations and project proposals accordingly. As described in chapter 3 in terms of knowledge brokering, a coordinating and facilitating role such as that of a systems integrator can help in this regard.

A systems integrator can facilitate achieving approaches that do justice to such recommendations. Because of their role in the Dutch public health structure, community health services are organizations that could very well act as such systems integrators. Facilitating co-creation processes, including health promotion principles and the above recommendations in such processes, and making results visible, are main tasks relating to such a role. Small-scale pioneering with experiments like Neighbors Connected, or identifying emerging projects and scaling these up, provide the chance to further investigate opportunities for such a role.

### **This thesis as a learning experience, final considerations**

Learning is a key concept in systems thinking that applies to health promotion practice. This same notion of learning applies to research like this PhD thesis and collaboration such as realized within the academic collaborative AGORA. These learning experiences have resulted in new insights as presented in this thesis but also raised new questions and considerations that are elaborated on below.

### ***Methodological reflection***

The aim in systems thinking to include a diversity of viewpoints on an issue was addressed in this thesis by using a multi-method approach. A diversity of methods, semi-structured and open interviews, interactive workshops, case study and survey research, were used. Data were collected from different sources (aging individuals, policymakers, professionals, researchers) and in different settings (local municipalities, national stakeholders). Following an action research approach, results were shared with local stakeholders, and feedback from these stakeholders was used to further shape research within this thesis. This multi-methods approach offered several opportunities for triangulation of results by means of data source triangulation, methods triangulation, and researcher triangulation. Comparing and contrasting results in this way improves confidence in research findings, their validity, and credibility. Furthermore, an assets-based approach was adopted, which is a promising way to support health promotion in practice. However, choices made on methods entail a number of limitations and challenges.

A systems thinking approach aims to appreciate complexity. Qualitative methods, like those used in chapters 4 and 5, are not always valued for their scientific rigor, because of their sensitivity to subjectivity. In this case, we opted for qualitative methods because these match well with the aim of systems thinking as they offer sensitivity to different perspectives and personal experiences. The validity of findings in these chapters was maximized by the use of triangulation. Quantitative methods, however, are essential in assessing health outcomes and the effectiveness of interventions and programs. Research inevitably means reduction of the complexity of real-world settings, and this applies to a greater extent in quantitative methods. The use of scales to measure more complex constructs, like Sense of Coherence, is not without difficulties, especially when using sum scores. For instance, the psychometric analyses of the Sense of Coherence scale indicate that some items are perceived differently by aging persons, and this influences the reliability of the sum score. This pleads for a multi-methods approach in which qualitative and quantitative evaluations are synthesized. In addition, quantitative analysis techniques that better handle complex modeling, like structural equation modeling which allows the modeling of multiple observed variables to a latent construct and takes measurement error into account, are available. The use of such methods can complement findings presented in this thesis.

The assets-based approach in this thesis influenced the way questions were asked and data were analyzed. Although this approach facilitated open conversations during the interviews and thereby improved the quality of data obtained, it could very well have caused a bias. Since problems were discussed during the interviews and were included in the analyses of these interviews, this bias remains small. Also, the assets-based approach was adopted purposely to be able to complement available deficit-based epidemiological data. Therefore, any remaining bias is not necessarily a problem. Of course, the same can be said about a deficit-based approach as used in chapter 3 of this thesis. Investigating data

for systems failures might emphasize problems and overlook systems merits. However, being informed by other studies within this thesis, this was accounted for and merits were included in the analyses.

This thesis focused on diverse perspectives and experiences of stakeholders. Although experiences relate to constraints such as financing structures and other contextual factors, this is inevitably colored by the interviewees' personal points of view and personal aims. A more objective analysis of contextual constraints and challenges is needed to overcome this bias but did not fit within the scope of this thesis. However, human perceptions –even if biased– can be regarded as a social fact and can be very real in their consequences.

This thesis addressed the local practice of health promotion through the healthy aging program. This focus on healthy aging limits the applicability of the results to other areas of health promotion. Nonetheless, key principles such as appreciating different perspectives, discussing points of view, and co-creating solutions apply to many issues, within health promotion and other fields. Also, the framework discussed in chapter 6 offers ample opportunities for a broad application. The framework was developed and applied in an iterative process in which local stakeholders continuously provided feedback on research results. The applicability of the framework in other settings, however, was not investigated, but could be interesting because other areas of health promotion also deal with complex environments and different stakeholder perspectives. However, since contexts in which health promotion activities take place can differ largely and change continuously, action research is required to facilitate practical application.

In relation to evaluation of health promotion, the development of so-called *realist evaluation approaches*, such as realist synthesis (Douglas, Gray, & van Teijlingen, 2010; Pawson, 2002, 2007) and critical realism (Connelly, 2001), as well as reflexive monitoring (van Mierlo 2010), looks promising. These approaches aim to elucidate implementation processes and contextual factors that may influence the success of an intervention. This thesis confirms the need for a more elaborate evaluation design that provides a broad knowledge base. However, the scope of this thesis did not explicitly include evaluation approaches.

These methodological reflections reveal many challenges that lie ahead and to which systems thinking could provide a positive contribution. Two challenges relating to this thesis – applicability of salutogenesis in health promotion practice and personal experiences with working in an academic collaborative – stand out and are elaborated on below.

### **Salutogenesis**

Because of its integrated and positive approach, Salutogenesis was found to match well with a systems approach to health promotion and the principles of health promotion practice. This thesis provides a starting point for the operationalization of key concepts in systems thinking in health promotion practice by means of SOC and its dimensions. Since this

thesis focused on healthy aging, more research is needed to apply SOC and its dimensions to other subjects as well. An example would be the retrospective identification of success factors within existing projects, with special attention on systems thinking concepts like complex context and stakeholder perspectives. By doing this, SOC and its dimensions could function as a framework to synthesize success factors among different projects and identify general lessons.

Also, the relation between SOC and related concepts such as empowerment, coping, and health literacy at the individual level deserves more attention, for instance by applying qualitative methods within a retrospective design. The combination of professional stakeholders and target group perspectives into one design would be advisable. This thesis has illustrated the added value of a broad picture gained by combining different stakeholder perspectives. Overall, such a retrospective design would help to explicate intermediate results, for instance those relating to participation, empowerment, collaboration, and equity. This would help project plans, grant proposals, and evaluation reports to incorporate such outcomes and increase accountability that goes beyond health determinants and risk factors.

The quantitative relation between SOC, resources, and health also requires more attention. Complex modeling of relations, for instance by using structural equation modeling and longitudinal data, could provide additional insights into this relation and possibly into cause–effect relations. Discriminant analysis concerning SOC and related concepts like empowerment, coping, and health literacy would be useful to identify overlap in constructs and discriminant validity of the OLQ scale that measures SOC.

### ***Academic collaborative AGORA***

Working within the setting of an academic collaborative was a main asset to this thesis. The construction of the AGORA healthy aging project allowed for close collaboration between four projects working on the same subject and the exchange of insights and results. This thesis especially benefited from the practical application of results and the feedback from this practical application, as described in chapter 6. However, the AGORA project as such encountered the same systems thinking-related issues as the healthy aging projects in the local settings. Differences in perspectives and working routines strained effective collaboration and demanded a lot of energy in clarifying points of view.

Eventually, in line with the small-scale local experience of Neighbors Connected, the junior researchers within the four projects managed to work out a way towards effective collaboration on a smaller, more informal scale. The process towards this collaboration was experienced as just as insightful as the PhD research studies themselves and could easily have filled a fifth PhD thesis. Because these collaborative processes were not formulated as aims or objectives (though necessary to make the academic collaborative work) these outcomes, to this point, are not explicated and made visible and therefore remain “black boxed.”

Accountability for results concerning AGORA was required in evaluation reports with a focus on health outcomes and scientific publications. Interestingly, these evaluation formats did not provide space or evaluation points to elaborate on experiences with collaborative efforts between research and practice, which intentionally is the main focus of academic collaboratives. For instance, sections relating to communication and dissemination of results mainly require organization of local symposia, dissemination of reports, and presentations. The way results are received by professionals is part of this evaluation. However, the interactive co-creation as described in chapter 6 did not match the format of this evaluation, whereas in fact this was quite an innovative approach to knowledge dissemination and, according to chapter 3 of this thesis, the preferable way to optimize knowledge use.

## Concluding

By adapting a systems thinking perspective, the importance of the fact that health issues and possible intervention strategies are perceived differently by involved actors was argued within this thesis. Rather than just speaking about putting pre-designed health promotion interventions into action, a systems view, in which research is one amongst many stakeholders, implies speaking in terms of linking all kinds of actors in order to enable co-creation of projects. In this way, knowledge from scientific evidence, practical experiences and policy views is utilized. Consequently, the definition of health risks, health determinants, and possible intervention effects have to be verified in both scientific research and everyday practice.

Next to this, the importance of contextual factors to the everyday practice of health promotion was argued as well. Strategies to improve health are context sensitive, and consequently, certain strategies may not work in some settings whereas they function perfectly well in others. Measurement of successes of interventions should therefore use multi-method evaluations combining the use of quantitative and qualitative approaches to gain insight in the 'black box' of why an intervention failed or was successful. If not, alternatives are overlooked and at the same time successes may go unnoticed. The assumption that change and innovation can be planned in advance is challenged by a systems perspective. For co-creation and learning processes to be productive, goals and plans need to be updated continuously on the basis of new knowledge, experiences, and information.

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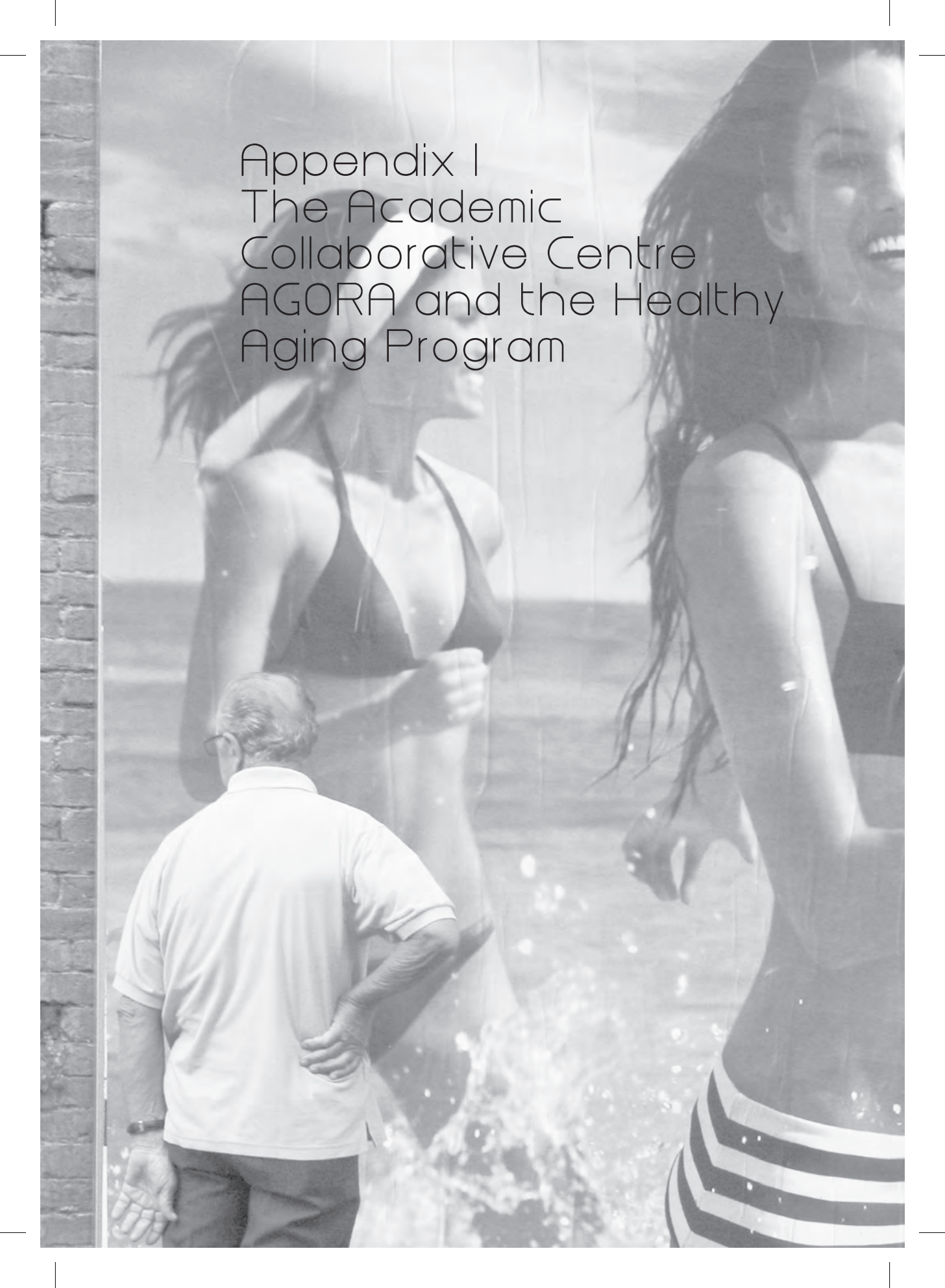
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Appendix I  
The Academic  
Collaborative Centre  
AGORA and the Healthy  
Aging Program

This PhD project is part of the healthy aging program by Academic Collaborative Centre AGORA. AGORA, which is Greek for marketplace, is a collaboration infrastructure that was set up in 2006 by Wageningen University and the community health service Gelre-IJssel. AGORA aims to contribute to the development of effective evidence-based problem-oriented interventions by synthesizing knowledge and bridging the gaps between practice, science and policy.

A total of four strongly interrelated PhD projects constitute AGORA's healthy aging program. This PhD thesis covers the research of project 3. Initial objectives were to develop a knowledge management system to support and facilitate intersectoral collaboration for healthy aging in the Gelre-IJssel region. A systems thinking approach was adapted to capture the knowledge and experiences of diverse stakeholders, including older people themselves, and gain a rich understanding of healthy aging at the local level. Guidelines for local collaboration and community action for healthy aging were identified and evaluated in collaboration with local stakeholders. Results will also be applicable to health promotion in other areas.

The initial objective of project 1 was to describe physical, mental and social health and its determinants in older people using existing epidemiological data. Knowledge gained in this way was used in the development of an intervention program and in optimizing a monitoring system for healthy aging.

The objective of projects 2a and 2b were to develop, implement and evaluate an evidence-based intervention program for healthy aging. Following an inventory of ongoing and completed interventions for healthy aging, the intervention program will address healthy aging with regard to health, well-being, and behavioral, social, contextual, and organizational determinants. The intervention as such includes a baseline assessment, implementation of the intervention, an effect evaluation and process evaluation, all to be conducted at the community health service.

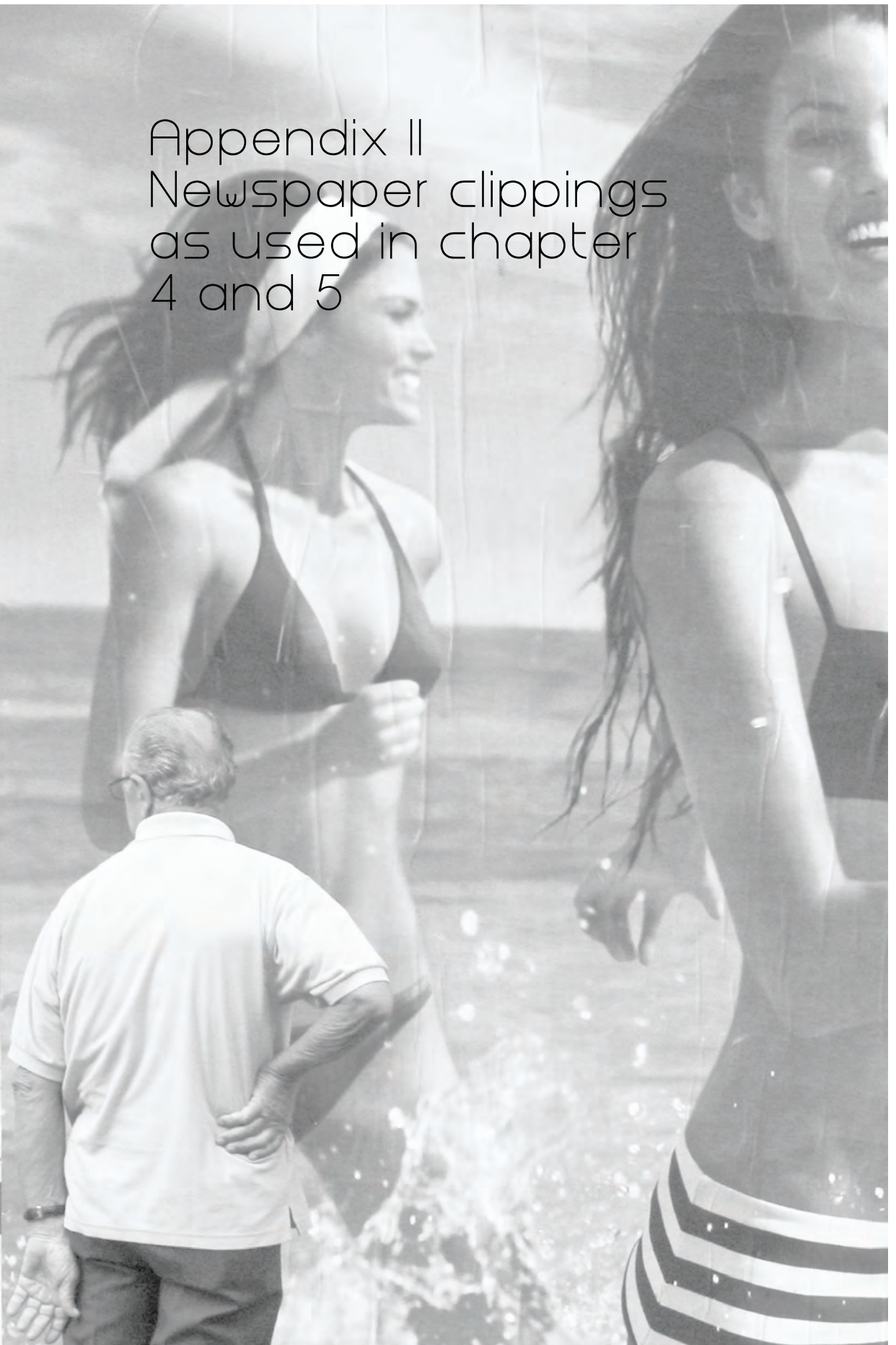
Although formulated separately, the projects within the research program of the Academic Collaborative are closely intertwined. The information gained in the early stages of project 1 and 3 is used to set priorities and guide implementation in project 2. At the same time, practical experiences during baseline measurements and implementation of the interventions will be fed back to core-projects 1 and 3 (scheme 1). Furthermore, despite the epidemiological character of project 1 and the more policy-oriented character of project 3, both projects make extensive use of each other's expertise, e.g. social determinants of health are included in project 1, and epidemiological data are used to discuss healthy aging issues with potential stakeholders.

Year	Core project 1 Health status and its determinants in the elderly	Core project 2 Evidence based intervention program for healthy aging	Core project 3 Knowledge management for intersectoral collaboration
2005	Covenant GGD Gelre-IJssel and Wageningen University & Research Centre Project proposal and start of Academic Collaborative AGORA		
2006	Health status and its determinants in the Gelre-IJssel region	Design and organisation of an intervention study	Inventory of stakeholders and collaboration processes
2007	Achievement of additional data	Implementation of intervention study	Develop knowledge management system
2008	Renewed elderly monitor for regional use	Effect and process evaluation	Application to other health issues and/or risk groups
2009			
2010 and on	Continuation of AGORA based on structural collaborative research (with additional external funding) and training activities at Wageningen UR and GGD Gelre-IJssel		

**Scheme 1** Schematic representation of the work programme of the Academic Collaborative Centre AGORA into three coherent core-projects.



Appendix II  
Newspaper clippings  
as used in chapter  
4 and 5



## Newspaper clipping

## Translation of title

### Berkelland municipality

# Ouderen in Berkelland bundelen hun krachten

Door onze verslaggever

**EIBERGEN - In de nieuwe gemeente Berkelland is ongeveer 30 procent van de inwoners ouder dan 55 jaar. Om de belangen van deze bijna 15.000 ouderen bij het nieuwe gemeentebestuur te behartigen, wordt er een speciale seniorenraad opgericht. 'Zo kunnen ze niet meer om ons heen.'**

Als er in Berkelland een politieke partij voor ouderen was opgericht, zou dit met een achterban van 15.000 mensen in één klap de grootste machtsfactor in de gemeenteraad zijn geweest. "Inderdaad", lacht Joop Koliijn. "Maar een politieke partij oprichten is niet ons doel. Al willen we wel invloed uitoefenen op het nieuwe gemeentebestuur."

Seniors in the Berkelland municipality join forces

# Oldtimers toeren met ouderen door regio

**EIBERGEN - Een stoet van zo'n honderd oldtimers toert zondagmorgen door de regio. De oude auto's maken een rondrit van 55 kilometer met zeventig-plussers uit Berkelland. Dit ter ere van de eerste ouderendag, die in wandelpark De Maat in Eibergen wordt gehouden.**

Old-timer cars tour organized for senior citizens



## Project 'sleept' senior huis uit

Project 'drags' seniors out of their homes

**EIBERGEN - De gemeente Berkelland gaat een 'vitaliteitscentrum' opzetten, een bureau om vereenzaamde senioren een zinvolle dagbesteding te geven.**

Uit onderzoek blijkt namelijk dat bijna de helft van de Berkellandse ouderen thuis zit weg te kwijnen achter de geraniums. Het centrum moet daar een einde aan maken, door met ouderen te praten, hen een medische keuring te geven en uit te zoeken waar problemen zijn. Daarna kunnen de ouderen gekoppeld worden aan vrijwilligerswerk of aan andere activiteiten.

## Voorlichting ouderen

Senior education (home information projects)

**BORCULO - Volgens de gemeente Berkelland weten veel senioren niet van welke voorzieningen en regelingen zij gebruik kunnen maken. Daarom belt de gemeente samen met de welzijnsorganisaties Het Hof en Animo de ouderen op om hen op de verschillende regelingen te wijzen. Onder het motto 'kleine moeite, groot plezier' bieden zij de senioren aan op bezoek te komen, om de regelingen en voorzieningen toe te lichten. Een groep van dertig vrijwillige voorlichters is deze week begonnen met het bellen van ongeveer zeshonderd ouderen. De vrijwilligers zullen zaken die tijdens een huisbezoek aan de orde komen, niet met anderen bespreken.**

## **Voorkomen van valpartijen bij ouderen thuis**

door RUDI HOFMAN

**25 JANUARI 2005 - LOCHEM/GORSSEL - Senioren in de gemeenten Lochem en Bathmen kunnen vanaf februari de valrisico's in huis laten inventariseren. Speciaal hiervoor getrainde vrijwillige veiligheids-adviseurs leggen op aanvraag een huisbezoek af, bekijken de risico's en komen met adviezen om valpartijen te voorkomen.**

Prevent falling incidents at home

## **Rijvaardigheidstest 50-plussers**

Van een van onze verslaggevers

**5 oktober 2005 – LOCHEM – Senioren van vijftig jaar en ouder kunnen donderdag 10 november in Lochem weer hun rijvaardigheid bewijzen. Stichting welzijn ouderen Lochem en omstreken en verkeersveiligheidsorganisatie 3VO houden gezamenlijk rijvaardigheidstesten.**

Driving instructions for senior

# Consultatiebureaus voor ouderen

Uit onderzoek van de Vrije Universiteit Amsterdam blijkt dat mensen boven de vijftig ongezonder leven dan tien jaar geleden. Ze drinken meer, bewegen minder en zijn te zwaar. Vijftigplussers hebben door hun ongezonde leefstijl en grotere kans op levensbedreigende ziektes als kanker, diabetes en hartkwalen. Vaak blijken ouderen zich niet bewust van de gezondheidsrisico's. Door regelmatige gezondheidscontroles en adviezen over een gezonde leefstijl kunnen gezondheidsproblemen bij ouderen voorkomen worden. Dit kan op een consultatiebureau voor ouderen.

Information bureau for  
seniors opened

Appendix II

## Epe municipality

### **Stichting stopt met uitgave De Wegwijzer**

EPE - Stichting Welzijn Ouderen Epe (SWO/E) stopt met het uitgeven van het informatieboekje 'De Wegwijzer'. De gemeente heeft besloten de subsidie stop te zetten en in eigen beheer een informatiegids voor ouderen uit te geven.

Publication of senior information guide gets cancelled

### **Ouderen willen zich maar niet melden voor valcursus**

EPE - Ouderen vinden het kennelijk heel moeilijk om toe te geven dat zij vallen of kunnen vallen. Dat concludeert Linda Seinstra van de Stichting Welzijn Ouderen Epe, omdat bijna niemand zich opgeeft voor de 'valcursus' In Balans die de SWOE organiseert.

Seniors don't apply to course aimed at prevention of falling incidents

### **Kookcursus**

**Piepers jassen en koken en pureren, groente wassen, snijden en koken en vlees bakken en braden. Voor de meeste deelnemers aan de kookcursus voor mannen van de Stichting Welzijn Ouderen Epe is dat hocus - pocus. Docente H. Vijge wil het ze in acht lessen, die worden gegeven in trainingscentrum Woldyne aan de Oenerweg in Epe, leren. Na de les mogen ze proeven of het gelukt is.**

Cooking classes

## Hulp bij invullen belastingaangifte

Administrative help  
provided

**EPE - Mensen die wat hulp nodig hebben bij het invullen van de belastingformulieren en geen gebruik kunnen maken van een accountant of boekhouder, kunnen in Epe en Vaassen terecht bij belastingspreekuren van de Stichting Welzijn Ouderen.**

## Gesprekskring zoekt leden

Conversational group in  
search for new members

**EPE – De Stichting Welzijn Ouderen (SWO/E) heeft een gesprekskring waarin uiteenlopende onderwerpen ter tafel worden besproken.**

## Massale deelname preventief huisbezoek

Massive participation in  
home-information projects

**31 MAART 2006 - EPE - Ouderen in de gemeente Epe hebben massaal deelgenomen aan een onderzoek naar wonen, welzijn en zorg. Het onderzoek werd uitgevoerd door de Stichting Welzijn Ouderen Epe. Doel ervan was inzicht te krijgen in de wensen en behoeften van senioren en anderzijds de ouderen te wijzen op mogelijkheden rond dienst- en hulpverlening.**

# Ouderen mogen hun rijbewijs opwaarderen

**EPE - Verkeersschool De Weerd en de Stichting Welzijn Ouderen (SWO/E) stellen senioren in de gelegenheid het rijbewijs op te waarderen.**

Seniors refresh their driving skills

## Tentoonstelling toont valkuilen voor ouderen

ZUTPHEN - 'Halt U Valt' is de naam van de tentoonstelling die op woensdag 18 en donderdag 19 april te zien is in Warnsveld en Zutphen. De organisatie is in handen van de vier lokale ouderenbonden.

Exhibition focuses on hazards that cause falling incidents



## Rijvaardigheidsritten 50+

Veilig verkeer Nederland afdeling Zutphen/Warnsveld organiseert voor de 15e keer, in samenwerking met de Stichting Born Zutphen, Stichting Bevorderen Welzijn Ouderen Warnsveld, Pearl opticiens en Beter Horen de jaarlijkse senioren rijvaardigheidsritten op woensdag 28 maart 2007 vanaf De Hanzehof in Zutphen.

Deze ritten worden voorafgegaan door een voorlichtingsavond op dinsdagavond 27 maart 2007. Daar worden verkeerssituaties, verkeersregels en tekens in Zutphen en Warnsveld uitgebreid toegelicht.

De kosten bedragen 15 euro pp. Verder kan men tevens voor of na de ritten in De Hanzehof schilderijen en foto's over oud Zutphen bekijken.

Driving skills



## Cursussen en Activiteiten Centrum De Born

Maandag	Yoga
Dinsdag	Engels Kegelen (2x per maand in De Hanzehof) Tennissen (bij Hotel Intell)
Woensdag	Geheugentraining Meer bewegen voor allochtone vrouwen
Donderdag	Meer bewegen voor ouderen Bridgeclub TOP Engels Sjoelclub
Vrijdag	Engels Volksdansen Tekenen en Schilderen Uit de put Vrij internetten (bij abonnement)

Courses and activities at  
Born social centre

## Hulp bij invullen aangifte inkomstenbelasting

In februari/maart zullen nieuwe “verzoeken” tot het doen van aangifte inkomstenbelasting weer in de bus vallen.

Zoals ieder jaar staan de belastinginvullers van de Ouderenbonden weer voor u klaar.

Vanaf 1 februari a.s. kunt u zich telefonisch melden bij één van de onderstaande heren.

De belastinginvullers werken voor alle leden dus u mag bellen wie u wilt; én -zij komen bij u thuis!

Administrative help  
provided



# Informatiepunt Zutphen Online!

Door webmaster Born

**Maandag 12 maart j.l. hebben MEE-Oost Gelderland, Stichting Welzijnswerk Zutphen, Stichting Bevordering Welzijn Ouderen (SBWO, Warnsveld) en Born Ouderenwerk in Centrum de Born de website Informatiepunt Zutphen gelanceerd.**

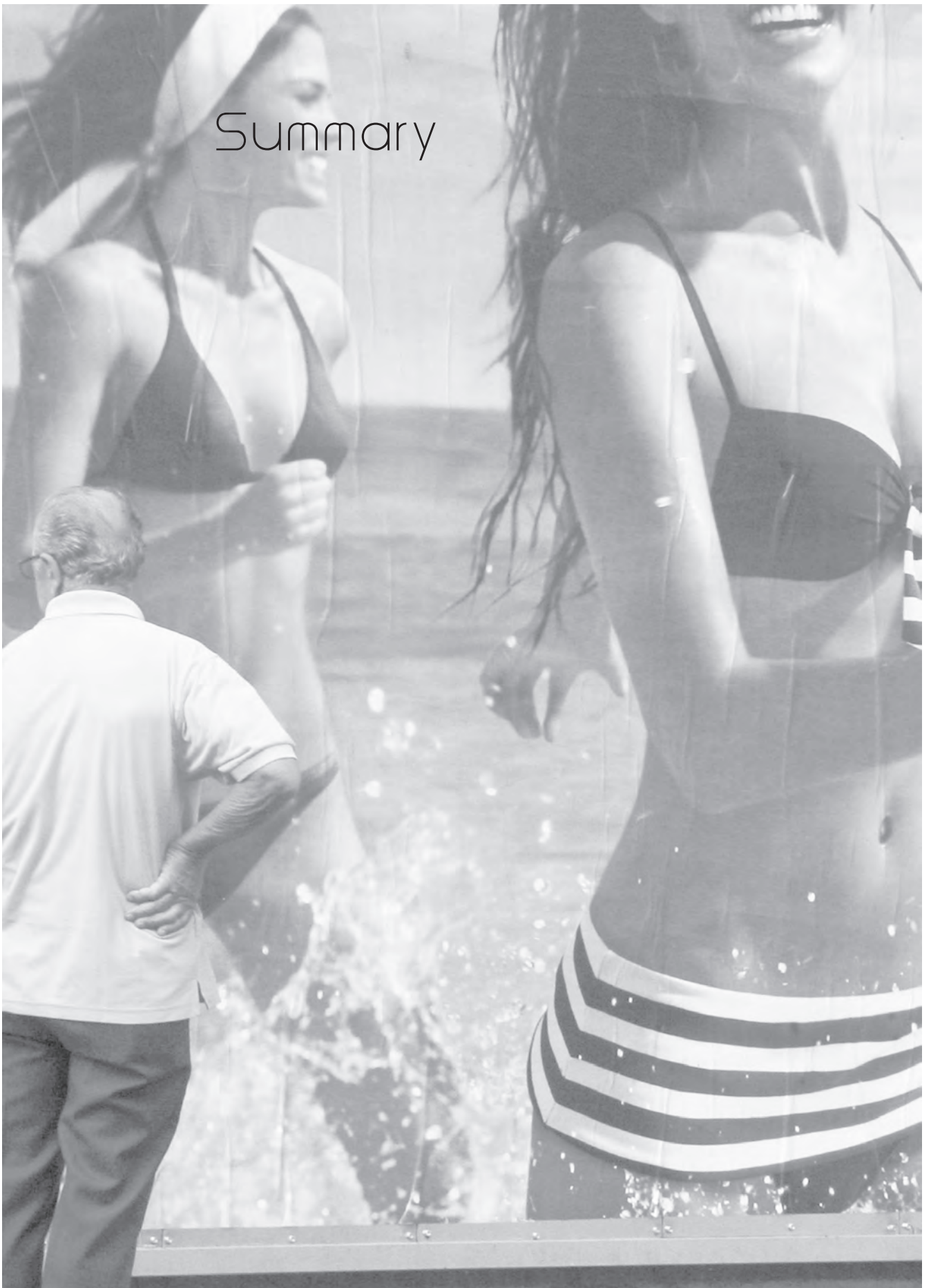
Wat is het Informatiepunt Zutphen

Het Informatiepunt Zutphen is een digitaal informatiesysteem voor jongeren, ouderen en mensen met een beperking. Informatie over regelingen en voorzieningen in Zutphen kan op een eenvoudige manier worden opgezocht.

Informationguide Zutphen  
online available



# Summary



## Summary

Many different stakeholders and contextual factors influence the success or failure of health promotion activities. Conventional approaches and evaluation designs underlying health promotion interventions, often explicitly take contextual variables out of consideration by controlling them. In doing so, relevant information about why a project was successful or failed to reach success remains invisible and 'black boxed'. Next to this, in health promotion practice, control over contextual variables often is not possible.

The main objective of this thesis was to appreciate the complex environment in which health promotion for healthy aging takes place by applying a systems thinking perspective. The three parts within this thesis explored 1) a system theoretical approach to health promotion; 2) the application of systems thinking to healthy aging at the local level and; 3) the operationalization of new insights in research, policy and practice. The main part of this thesis was situated within the healthy aging program by Academic collaborative AGORA.

## Part I

Systems thinking increasingly receives attention in health promotion research and literature. However, the actual application of systems thinking in health promotion practice remains underdeveloped. **Chapter 2** therefore explored practical applications of systems thinking in other fields such as agricultural extension studies, development studies and organizational studies.

It was found that systems thinking in practice includes different stakeholder perspective on issues to gain a broad picture on possible improvements. Next to this, contextual conditions, like resources available to stakeholders and decisions on what stakeholders to involve in a project are made explicit.

In health promotion at the national level, there exists a concern about the fact that research based knowledge and evidence based interventions are under-utilized in health promotion practice. To gain insight in underlying issues, a study applying a systems thinking approach, in which stakeholder views and contextual factors played a central role, was conducted. **Chapter 3** describes this study which was performed at the national level, thus outside the AGORA infrastructure. Building on insights described in chapter 2 this study applied a matrix to facilitate the analysis of different stakeholder perceptions originating from 33 interviews. The application of this matrix resulted in the identification of experienced problems, interrelatedness between problems and underlying mechanisms.

Overall, Part I of this thesis concludes that a systems thinking approach strengthens health promotion by 1) including diverse stakeholder perspectives, 2) explicitly addressing contextual factors, and 3) co-creating solutions with all involved.

## Part II

Following the main conclusions drawn in Part I of this thesis, Part II addresses the application of systems thinking at the local level. To do so, local stakeholders were interviewed about their perceptions concerning healthy aging and current healthy aging activities within their municipality. Three municipalities collaborating with AGORA participated in this study. In each municipality, local organizations, policy makers and older people were interviewed.

*Chapter 4* describes results from 79 open interviews with aging individuals. Main findings show how aging is experienced as an integral and positive part of daily life. Since many facilities and interventions tend to emphasize negative consequences of aging by addressing isolated health risks, these do not match well with this daily life perception. As a result, interviewees recognize the importance of facilities and provisions but do not want to relate to them in terms of usability by themselves.

*Chapter 5* addressed local professionals and policy makers' perspectives. Interviews with 44 stakeholders were analyzed and a framework was used to compare the three different municipal settings. Working routines and financing structures were found to support an isolated and risk factor based approach in practice. Collaborative efforts, although valued by interviewees, were hampered by this. Familiarity between organizations was found to support collaboration. The three municipalities did not differ largely in terms of geographical location and priorities for healthy aging (as defined by the senior inhabitant survey of the community health services). However, contextual factors such as familiarity among local organizations were not always present. This advocates against the implementation of ready-made interventions in the same way for each municipality.

Overall, Part II of this thesis concludes there is a discrepancy between the way aging individuals experience healthy aging as an integral part of everyday life and the way services and interventions are presented with a focus on isolated health themes. In some cases, this evokes negative feeling of powerlessness. As a result interventions that aim to support the aging population eventually undermine healthy aging in the target groups' point of view. Local healthy aging strategies can benefit by taking into account an assets based approach that better matches aging persons' perspectives. Next to this, collaboration between local stakeholders can be facilitated when shared issues are made visible and contextual pre-conditions are taken into account.

## Part III

The identification of different perspectives through interviews by itself does not facilitate the use of these results. The operationalization of systems thinking in health promotion therefore can benefit from learning experiences with application in practice. To do so, findings from Part II were discussed in interactive presentations and workshop formats in

participating municipalities. Professionals as well as older inhabitants were invited to these meetings in order to co-create follow up steps.

**Chapter 6** first describes the framework that was co-created in the context of AGORA in order to enable all parties involved to collaborate meaningfully in a complex environment. Subsequently, the chapter presents an intervention that was developed through the use of this model, and reflects on its potential for addressing healthy aging and meeting the challenges of dealing with a complex environment. The key of the developed framework lies in the adaptation of an assets based approach to better match aging persons' perceptions. The theory of Salutogenesis that addresses what constitutes health as opposed to what causes disease, was therefore included in the framework by means of the concept Sense of Coherence. This concept addresses the extent to which older people feel able to use available resources. The use of the developed framework in practice stimulated the inclusion of different stakeholder perspectives and different types of knowledge, originating from both quantitative and qualitative research. In practice, this resulted in the co-creation of the project Neighbors Connected.

Sense of Coherence and its dimensions meaningfulness, manageability and comprehensibility, were identified as promising concepts to operationalize systems approaches in health promotion practice. It was therefore expected that quantitative measurement of SOC could provide useful information for both the development and evaluation of health promotion. **Chapter 7** describes the assessment of the Orientation to Life Questionnaire (OLQ) that measures an individual's SOC. Results from psychometric assessments indicate difficulties with the use of this scale in aging populations. Deleting two items from the original 13 items, improved the functioning of OLQ.

Overall, Part III concludes that salutogenesis as an assets based theory and the related concept Sense of Coherence provide promising concepts to operationalize systems thinking in health promotion practice. Qualitative use of SOC in the development of the described framework and 'Neighbors Connected' has proven to be successful. However, in order to use SOC more broadly than as an outcome measure alone, further quantitative assessments are required.

## Conclusion

By adapting a systems thinking perspective, the importance of the fact that health issues and possible intervention strategies are perceived differently by involved actors was argued within this thesis. Rather than just speaking about putting pre-designed health promotion interventions into action, a systems view, in which research is one amongst many stakeholders, implies speaking in terms of linking all kinds of actors in order to enable co-creation of projects. In this way, knowledge from scientific evidence, practical experiences and policy views is utilized. Consequently, the definition of health risks, health determinants, and possible intervention effects have to be verified in both scientific research and everyday practice.

Next to this, the importance of contextual factors to the everyday practice of health promotion was argued as well. Strategies to improve health are context sensitive, and consequently, certain strategies may not work in some settings whereas they function perfectly well in others. Measurement of successes of interventions should therefore use multi-method evaluations combining the use of quantitative and qualitative approaches to gain insight in the 'black box' of why an intervention failed or was successful. If not, alternatives are overlooked and at the same time successes may go unnoticed. The assumption that change and innovation can be planned in advance is challenged by a systems perspective. For co-creation and learning processes to be productive, goals and plans need to be updated continuously on the basis of new knowledge, experiences, and information.





Samenvatting  
-summary in Dutch-



## Samenvatting

Bij het al dan niet slagen van een gezondheidsinterventie spelen zowel situationele factoren als veel verschillende betrokkenen een rol. In onderzoek worden deze variabelen vaak buiten beschouwing gelaten door deze variabelen constant te houden of door te controleren voor de eventuele effecten van deze variabelen. Belangrijke informatie met betrekking tot het succes of het falen van een project blijft hierdoor echter onzichtbaar, blijft verstopt in de zogenaamde 'black box'. Bovendien is het controleren voor situationele factoren in de dagelijkse praktijk vaak onmogelijk. Dit onderzoek had als doel gezondheidsbevordering ten aanzien van gezond ouder worden te benaderen vanuit het perspectief van systeemdenken om zo meer recht te doen aan deze complexiteit. In drie opeenvolgende delen beschrijft dit proefschrift: 1) een systeembenadering voor gezondheidsbevordering, 2) de toepassing van systeemdenken voor gezond ouder worden op lokaal niveau en 3) de toepassing van de verworven inzichten in onderzoek, beleid en praktijk. Het onderzoek werd grotendeels uitgevoerd binnen de context van de academische werkplaats AGORA.

## Deel I

Het perspectief van systeemdenken is steeds vaker terug te vinden in onderzoek en literatuur over gezondheidsbevordering. De praktische toepassing van systeemdenken binnen gezondheidsbevordering blijft echter beperkt. **Hoofdstuk 2** inventariseert daarom ervaringen en praktische toepassingen van systeemdenken binnen andere wetenschapsgebieden zoals communicatiewetenschappen, ontwikkelingsstudies en organisatiewetenschappen. Uit deze inventarisatie kwam naar voren dat systeemdenken er in de praktijk naar streeft de verschillende opvattingen van betrokkenen zichtbaar te maken om zo tot een breed beeld van mogelijke verbeterpunten te komen waar vervolgens gezamenlijk aan gewerkt kan worden. Daarnaast worden situationele factoren expliciet gemaakt, zoals de middelen waar men beschikking over heeft en wie precies de betrokkenen zijn.

Op nationaal niveau bestaat het beeld dat de uitwisseling van kennis tussen wetenschap en praktijk moeizaam verloopt. Vragen uit de praktijk worden niet goed opgepakt door onderzoekers en wetenschappelijke kennis wordt onvoldoende gebruikt in de praktijk. Om meer inzicht te krijgen in de processen die hier aan ten grondslag liggen is het systeemdenken toegepast binnen de studie die wordt beschreven in **hoofdstuk 3**. In deze studie, die werd uitgevoerd op nationaal niveau en buiten de context van AGORA, lag de nadruk op zowel de opvattingen van verschillende betrokkenen als situationele factoren. Om de informatie uit 33 interviews te structureren is gebruik gemaakt van een matrix die voortbouwt op inzichten uit hoofdstuk 2. Met behulp van deze matrix werden de verschillende problemen die betrokkenen ervoeren, de samenhang tussen deze problemen, en onderliggende factoren geïdentificeerd.

De conclusie van deel I is dat systeemdenken gezondheidsbevordering kan versterken door 1) het expliciet meenemen van verschillende opvattingen die leven onder betrokkenen, 2) het expliciet meenemen van contextuele invloeden en 3) het samen met betrokkenen creëren van oplossingen.

## Deel II

Voortbouwend op de bevindingen uit deel I, gaat deel II verder in op de toepassing van systeemdenken voor gezond ouder worden in de lokale praktijk. Hiervoor zijn verschillende betrokkenen ondervraagd over hun ideeën en meningen met betrekking tot gezond ouder worden in hun gemeente. Drie gemeenten die nauw samenwerken met AGORA waren betrokken bij deze studies. Binnen elke gemeente werden naast ouderen zelf, medewerkers van lokale organisaties, beleidsmedewerkers en wethouders van de gemeente geïnterviewd.

**Hoofdstuk 4** beschrijft de resultaten uit interviews met 79 ouderen. De resultaten laten zien hoe ouder worden als een integraal en vaak *positief* onderdeel van het dagelijks leven wordt ervaren. Veel voorzieningen en gezondheidsinterventies leggen juist de nadruk op *negatieve* aspecten van ouder worden door geïsoleerde gezondheidsthema's te benadrukken. Dit past slecht bij de dagelijkse beleving van de geïnterviewde ouderen. Het gevolg is dat ouderen wel het belang van voorzieningen erkennen, maar zich er niet mee identificeren of deze niet willen gebruiken. Dat wordt namelijk beleefd als iets voor 'echt oude mensen'.

**Hoofdstuk 5** beschrijft de ervaringen en opvattingen van lokale professionals en beleidsmakers zoals die uit 44 interviews naar voren kwamen. Hierbij zijn drie gemeenten vergeleken op belangrijke factoren voor lokale samenwerking. Hieruit kwam naar voren dat dagelijkse routines en de huidige financieringswijze een werkwijze in de hand werken waarin geïsoleerde gezondheidsthema's en risicofactoren centraal staan. Deze geïsoleerde aanpak verhinderde vervolgens lokale samenwerking, terwijl er vaak wel degelijk een gedeelde visie bestond. Goed contact en bekendheid tussen organisaties zorgen er op gemeentelijk niveau voor dat samenwerking sneller tot stand komt. De drie betrokken gemeenten lagen geografisch gezien niet ver van elkaar vandaan en zij verschilden weinig met betrekking tot belangrijke speerpunten in het gezondheidsbeleid voor ouderen. Er werd echter niet aan alle contextuele voorwaarden, zoals onderlinge bekendheid, voldaan. Dit pleit dan ook *tegen* het implementeren van uniforme interventies binnen iedere gemeente.

Uit deel II kan geconcludeerd worden dat er een spanningsveld is tussen de wijze waarop ouderen gezondheid ervaren en de wijze waarop voorzieningen worden aangeboden. Lokale initiatieven rondom gezond ouder worden zouden baat kunnen hebben bij een positievere benadering die beter aansluit bij de beleving van ouderen. Daarnaast kan samenwerking tussen lokale partijen worden gefaciliteerd door gedeelde problemen beter zichtbaar te maken en aandacht te besteden aan contextuele voorwaarden.

## Deel III

Het zichtbaar maken van de verschillende visies door middel van interviews faciliteert niet per definitie het gebruik van deze inzichten in de praktijk. Bij het vertalen van systeemdenken naar de dagelijkse praktijk van gezondheidsbevordering zijn eerdere ervaringen met toepassingen in de praktijk dan ook van grote waarde. Daarom zijn de resultaten uit deel II gepresenteerd aan en besproken met de betrokkenen in de deelnemende gemeenten. Zowel lokale professionals als oudere inwoners van de betreffende gemeenten waren betrokken bij deze interactieve sessies met als doel samen vervolgstappen te ontwikkelen.

**Hoofdstuk 6** beschrijft allereerst de totstandkoming van een nieuw model om de samenwerking tussen betrokken partijen te faciliteren. Dit model is binnen de context van AGORA en uit de samenwerking met betrokken gemeenten en professionals ontstaan. Daarnaast beschrijft dit hoofdstuk de ontwikkeling van een interventie op basis van het model en reflecteert het op de mogelijke toepassingen van het model op het gebied van gezond ouder worden en het omgaan met de complexe praktijk van gezondheidsbevordering. Het model gaat uit van een positieve benadering van gezondheid en sluit hiermee beter aan bij de beleving van ouderen. De theorie van 'salutogenese' onderschrijft deze benadering en is in de vorm van het gerelateerde concept 'Sense of Coherence' meegenomen in het model. Dit concept beschrijft de mate waarin mensen zich in staat voelen aanwezige bronnen, voorzieningen en interventies op een manier te gebruiken die bevorderlijk is voor de gezondheid. Toepassing van het model in de praktijk bleek de zichtbaarheid van de verschillende opvattingen onder betrokkenen te verbeteren en het gebruik van wetenschappelijke kennis uit zowel kwalitatief als kwantitatief onderzoek te faciliteren.

'Sense of Coherence' bleek een veelbelovend concept voor het verder operationaliseren van systeemdenken binnen gezondheidsbevordering. De verwachting was dan ook dat de mogelijkheid om 'Sense of Coherence' kwantitatief te meten een belangrijke bijdrage zou kunnen leveren aan zowel het ontwikkelen als het evalueren van interventies. **Hoofdstuk 7** beschrijft een studie naar de psychometrische kwaliteiten van de 'orientation to life' OLQ 13 schaal waarmee 'Sense of Coherence' wordt gemeten. De resultaten laten zien dat deze schaal van 13 items niet optimaal functioneert wanneer deze wordt gebruikt onder ouderen. Het weglaten van twee specifieke items verbetert het functioneren aanzienlijk.

De conclusie uit deel III is dat de positieve benadering waar salutogenese voor staat waardevol kan zijn bij het verder operationaliseren van systeemdenken voor de praktijk van gezondheidsbevordering. 'Sense of Coherence' is op een kwalitatieve wijze succesvol toegepast bij de ontwikkeling van het beschreven model. Om 'Sense of Coherence' breder toe te passen dan alleen als uitkomstmaat is een uitgebreidere kwantitatieve analyse wenselijk.

## Conclusie

Ouderen, professionals, beleidsmakers en onderzoekers hebben ieder hun eigen opvattingen over gezondheidsproblemen en geschikte interventiestrategieën. Door systeemdenken als uitgangspunt te nemen, benadrukt deze thesis het belang van deze verschillen. In plaats van kant en klare interventies toe te passen wordt vanuit dit uitgangspunt gezocht naar mogelijkheden om verschillende betrokkenen, verschillende visies en ideeën bij elkaar te brengen. Op deze wijze wordt een project in samenspraak vormgegeven en kan optimaal gebruik worden gemaakt van aanwezige kennis uit zowel wetenschap als praktijk. Dit betekent dus dat de definities van gezondheid, gezondheidsdeterminanten, gezondheidsrisico's en gewenste resultaten binnen zowel de wetenschappelijke context als de praktijk geverifieerd moeten worden.

Daarnaast stond het belang van verschillende contextuele factoren in deze thesis centraal. Interventiestrategieën zijn contextsensitief waardoor een interventie succes kan behalen in de ene setting, maar in een andere setting mogelijk geen effect heeft. Projecten zouden daarom gebaat zijn bij de toepassing van verschillende evaluatiemethoden, zowel kwalitatief als kwantitatief. Op deze wijze kan meer inzicht worden verkregen in de achterliggende 'black box' van interventies en de reden waarom deze al dan niet succesvol waren. Hiermee wordt voorkomen dat alternatieve strategieën en onverwachte successen onderbelicht blijven. Systeemdenken trekt het idee in twijfel dat veranderingen en innovaties van te voren gepland kunnen worden. Om een project samen vorm te geven (co-creatie) en sociale leerprocessen te stimuleren moeten plannen en doelen continu bijgesteld worden op basis van kennis, ervaringen, informatie en voortschrijdend inzicht.



About the author



## CURRICULUM VITAE

Jenneken Naaldenberg was born on 26 March 1980 in Doesburg, the Netherlands. In 1997 she completed her secondary education and started the Bachelor's program Food & Management at the Hogeschool van Arnhem en Nijmegen in Nijmegen with a special interest in entrepreneurship. She obtained her Bachelor's degree in 2001 and enrolled in the master's program Management, Economics and Consumer Studies at Wageningen University. In September 2005 she graduated with a specialization in Sociology of Consumers and Households. Her master's thesis reported on the different kinds of concerns consumers are confronted with through regular media and the influence of these concerns on their decisions.

Triggered by the positive experiences and challenges offered by research, she started her PhD project with the Health and Society group at Wageningen University in 2006. Her project was part of the healthy aging program of Academic Collaborative Centre AGORA, a collaboration between Wageningen University and community health services GGD Gelre-IJssel. Her research focussed on systems thinking approaches to health promotion in practice. As a part of her PhD training she visited the Inter University Consortium for Political and Social Research (ICPSR) in Ann Arbor, Michigan, in 2009 for a 2-month summer school in statistics. She also participated in the 2007 ETC PHH summer school on health promotion in Wageningen and Dusseldorf. In March 2011 she completed her thesis.

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# EDUCATION CERTIFICATE

## Completed Training and Supervision Plan



Description of the activity	Department/Institute	Year	ECTS*
<b>A) Project related competences</b>			
ERA-AGE workshop on user involvement in research	ERA-AGE London	2006	1
ETC-PHHP summer school public health & health promotion	ETC-PHHP	2007	8
Communication in interdisciplinary research	WGS/CERES	2008	1
ICPSR summer program quantitative methods of social research	ICPSR institute for social research University of Michigan	2009	12
Organization of an international symposium presentation at the 2010 IUHPE conference	IUHPE conference Geneva Switzerland	2010	1
<b>B) General research related competences</b>			
WASS introduction course	WASS	2006	1.5
Scientific writing	WGS	2007	1.7
Individual coaching for professionals writers	Yoeke Nagel	2009	1
<b>C) Career related competences/personal development</b>			
PhD assessment	WGS	2006	0.3
Effective behaviour in professional surroundings	WGS	2008	0.5
Career assessment	WGS	2011	0.3
Supervision of BSc and MSc thesis students	Health & Society	2008 2010	2
Teaching activities	Coordinated action for health	2007 2008	2
<b>D) Presentations at conferences</b>			
Energie voor verandering: Op zoek naar interventiestrategieën met participatie van doelgroep en uitvoerende organisaties	9 <sup>e</sup> Nationale Gerontologie Congres Ede	2008	1
Intersectoral collaboration and coordinated action for healthy ageing in a systems thinking perspective	20 <sup>th</sup> IUHPE conference Geneva Switzerland	2010	1
<b>Total (minimum 30 ECTS)</b>			<b>34.3</b>

\* One ECTS on average is equivalent to 28 hours of course work

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